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UNITED STATES DISTRICT COURT
NORTHERN DISTRICT OF CALIFORNIA
SAN FRANCISCO DIVISION

IN RE QUANTUMSCAPE SECURITIES CLASS ACTION LITIGATION	Master File No. 3:21-cv-00058-WHO Hon. William H. Orrick CLASS ACTION **SECOND AMENDED CONSOLIDATED CLASS ACTION COMPLAINT FOR VIOLATIONS OF THE FEDERAL SECURITIES LAWS** Demand for Jury Trial

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Lead Plaintiff Frank Fish and Plaintiffs Kathy Stark and Mary Cranny (collectively, "Plaintiffs"), by and through undersigned counsel, alleges the following upon information and belief, except as to those allegations concerning Plaintiffs, which are alleged upon personal knowledge. Plaintiffs' information and belief is based upon, among other things, the investigation made by and through Plaintiffs' attorneys, which includes without limitation: (i) QuantumScape Corporation's public filings with the U.S. Securities and Exchange Commission ("SEC"); (ii) QuantumScape's other public statements, including press releases and investor conference calls; (iii) interviews with experts; (iv) reports of securities and financial analysts, news articles, and other commentary and analysis concerning QuantumScape and the industry in which it operates; and (v) court filings.

Plaintiffs believe that substantial evidentiary support will exist for the allegations set forth herein after a reasonable opportunity for discovery.

I. NATURE OF THE ACTION

1. This is a federal securities class action on behalf of a class consisting of all persons other than Defendants who purchased or otherwise acquired securities of QuantumScape between November 27, 2020, through April 14, 2021, inclusive (the "Class Period"), and were damaged thereby (the "Class"). Plaintiffs allege that defendants QuantumScape, Jagdeep Singh, Kevin Hettrich, and Timothy Holme (collectively, "Defendants") violated the Securities Exchange Act of 1934 (the "Exchange Act"), 15 U.S.C. §78a, et seq. Plaintiffs seek to recover compensable damages caused by Defendants' violations of the federal securities laws and to pursue remedies under Sections 10(b) and 20(a) of the Exchange Act and Rule 10b-5 promulgated thereunder.

2. QuantumScape is a pre-revenue company with no commercial operations. QuantumScape develops a single "solid-state" battery prototype, using a solid-state separator for the use in electronic vehicles, rather than the traditional lithium-ion battery used today. For the past 40 years, no one has been able to make a solid-state battery that can perform as well as lithium-ion. Despite this, QuantumScape purports to have solved the solid-state battery puzzle, claiming its solid-state lithium-metal batteries are safer, have greater range, faster charge times and improved cycle life compared to conventional lithium-ion battery technology. Throughout the Class Period, Defendants represented to investors that: (i) QuantumScape's technology was more developed and had better capabilities than it

did in reality, (ii) that the "science risk" of QuantumScape's technology was behind them, (iii) that its battery was "ready for commercial deployment" and all that was needed was to "scale up production and make multilayer versions of these cells," and (iv) that its battery exceeded what was capable in lithium-ion batteries. Unbeknownst to investors, however, QuantumScape used a number of "compromises" in its tests to manipulate its data. By doing so, QuantumScape was able to represent that its technology was more advanced, ready for commercial development, and capable of performing as well as lithium-ion batteries. The truth was revealed over two partial corrective disclosures when Dr. Morin, through *Seeking Alpha*, and Scorpion Capital published their findings on QuantumScape's test results and data. As news of QuantumScape's deceptive data results spread through the market, Plaintiffs and the other QuantumScape investors who are Class members suffered millions of dollars in damages. This action seeks to recover those losses for the Class members.

3. Solid-state batteries, as the name suggests, do away with the heavy liquid electrolyte that lives inside lithium-ion batteries. The replacement is a solid electrolyte, which can come in the form of a glass, ceramics, or other materials. The key characteristic that defines a solid-state cell is the separator, which is the material that keeps the anode and cathode apart, is entirely solid-state.

4. The potential increase in energy density for a solid-state lithium-metal anode battery has been known since the mid-1970s. However, it has also been known that solid-state lithium-metal anodes do not work with conventional liquid electrolytes due to the twin issues of dendrite formation when a battery is being charged and rapid impedance growth from a chemical side-reaction between the liquid electrolyte and the lithium metal. Dendrites are needle-like metallic growths and deposits of lithium metal that resemble a tree, roots, or a fungus. Once a dendrite develops, it quickly grows out of control and the battery shorts and fails. QuantumScape's CEO describes dendrites as a "monster that's lurking" and that "with enough cycles it will just burst out" like "that monster in Alien in the '80's…."

5. Despite the potential benefits of a solid-state battery, as is usual with technology such as this, it is essential that the new system outperforms what is currently available to gain market share. Therefore, new battery technology is often compared to today's lithium-ion. Given the known increase in energy density from solid-state batteries, the market has been flooded with companies who have alleged to solve the solid-state puzzle, only to later be revealed as frauds, using compromised test

conditions to manipulate their data. In particular, companies often use the following tricks or compromises to manipulate data to show the resistance of dendrite formation, and performance equal to that of conventional lithium-ion: (i) using low current density in their test that are not useful for automotive applications, (ii) use elevated temperatures to show the resistance of dendrites, (iii) have excess lithium on the anode, (iv) use "pulse tests" to prevent dendrites, rather than running tests continually, and (v) using small, irrelevant cell sizes.

6. It took QuantumScape 10 years and $300 million in research and development costs to produce its "solid-state" technology that includes a 100% ceramic solid-state separator. Defendants claim its technology: (i) has a lithium-ion conductivity similar to or better than today's liquid electrolytes; (ii) is chemically and electrochemically stable to lithium metal; and (iii) resists the formation of lithium-metal dendrites. QuantumScape alleges that its battery meets these requirements without requiring the compromised test conditions described above.

7. On November 25, 2020, QuantumScape went public through a reverse merger with Kensington Capital Acquisition Corp, and began trading on the New York Stock Exchange under the ticker "QS." Two days later, on November 27, 2020, Defendant Singh appeared on CNBC telling the public that QuantumScape had solved solid-state puzzle, indicating that the "fundamental science risk" was resolved and, as a result, QuantumScape was ready to "ramp[] up production" and move on to the "final automotive qualification process."

8. Just two weeks later, on December 8, 2020, QuantumScape held a presentation, releasing for the first-time results, data, and specifications from its internal testing that purported to show that QuantumScape's battery technology resisted dendrites, was capable of a 15-minute charge to 80% capacity, could last 800 cycles and hundreds of thousands of miles, could operate at a wide range of temperatures, and that its battery was safer, had better energy density, and performed as well, if not better than today's lithium-ion battery. Defendants told investors that these results "demonstrate[] that this technology is in fact ready for commercial deployment as soon as we can scale up production and make multilayer versions of these cells" and that "the fundamental science risk is behind" them. Defendants held their showcase via zoom, publishing a press release and it slide-show presentation to QuantumScape's website and with the SEC.

9. On January 4, 2021, prior to the market opening, *Seeking Alpha* published a research report by Dr. Brian Morin titled "*QuantumScape's Solid State Batteries Have Significant Technical Hurdles To Overcome*." Dr. Morin reviewed QuantumScape's December 8, 2020, presentation and offered his expert interpretation of the results presented by QuantumScape. Dr. Morin's report revealed to the market that QuantumScape had "overstated" several successes related to its battery including the battery's (i) power, (ii) range, (iii) low temperature operation, (iv) low temperature life, and (v) energy density, and omitted materially information related to (vi) dendrites, (vii) safety and (viii) cost.

10. As a result, investors began doubting and questioning QuantumScape's data and results. When Dr. Morin's report was published and the true nature was partially revealed to the market, QuantumScape's stock price plummeted from a close of $84.45 on December 31, 2020, to a close of $49.96 on January 4, 2021, a decline of 40.84%, on unusually heavy trading volume of 84.7 million shares.

11. Despite investors' doubts about QuantumScape's presentation and data, Defendants doubled down, repeating the prior representations about QuantumScape's technology. On January 4, 2021, Singh appeared on CNBC's "Closing Bell" defending the December presentation, stating, "[w]e have something that has never been shown to the world before, a solid-state system that delivers levels of performance that are really record breaking not only in comparison to other solid-state efforts, but even in comparison to conventional lithium-ion technology."

12. Defendants reiterated the December 8, 2020 results in a LinkedIn article published by Defendant Holme on January 15, 2021, and in QuantumScape's shareholder letter on February 16, 2021. Similarly, Singh represented on February 17, 2021, and February 25, 2021, that "the chemistry is largely behind us," and that the results showed that QuantumScape's technology "could perform under uncompromised testing conditions."

13. On April 15, 2021, a research firm called Scorpion Capital published a 188-page report, titled "QuantumScape (NYSE: QS) *A Pump and Dump SPAC Scam by Silicon Valley Celebrities, That Makes Theranos Look Like Amateurs*." Scorpion Capital's report revealed to the market that QuantumScape had used a number of compromised tests, including cell size, elevated temperatures, and "pulse tests," to manipulate its data. By using compromised tests, QuantumScape was able to promote

and published six "[p]hony claim[s]" relating to its battery technology including: a) solid state material resists dendrites; b) battery performance in low temperatures; c) fast charging to 80% in under 15 minutes; d) long battery life to 1000+ charge/discharge cycles; e) battery life in low temperatures; and f) aggressive automotive power profiles.

14. When the Scorpion Capital Report was published on April 15, 2021, and the true nature of QuantumScape's battery technology was revealed to the market, QuantumScape's stock price plummeted from a close of $40.85 on April 14, 2021, to a close of $35.85 on April 15, 2021, a decline of 12.24%, on unusually heavy trading volume of 59.0 million shares.

15. The *Seeking Alpha* article and Scorpion Capital reports cited above revealed important questions about QuantumScape's testing methods and claims. These disclosures led the market to view Defendants' claims with skepticism. Investors were right to do so. Many of the claims that Defendants made about QuantumScape's technology were materially misleading. For example, Defendants had overstated its energy density, cost, and safety compared to lithium-ion. Similarly, QuantumScape's battery provided attractive test results only under compromised conditions that did not reflect real-world conditions. For example, in order to prevent dendrites, Defendants had compromised a number of factors by using elevated heat, small irrelevant cells, and "pulse tests."

16. By failing to disclose the above facts, Defendants were able to portray a state of affairs that differed materially from the one that existed at the time, specifically that: (i) QuantumScape's technology was more developed and had better capabilities than it did in reality, (ii) that the "science risk" of QuantumScape's technology was behind them, (iii) that its battery was "ready for commercial deployment" and all that was needed was to "scale up production and make multilayer versions of these cells", and (iv) that its battery exceeded what was capable in lithium-ion batteries. Had Defendants been honest when discussing QuantumScape's battery technology, investors would have been able to assess the true level of risk inherent in their investments. As a result, Plaintiffs and the Class have suffered millions of dollars in losses. Defendants should be held accountable for these losses.

II. JURISDICTION AND VENUE

17. The claims asserted herein arise under and pursuant to §§10(b) and 20(a) of the Exchange Act [15 U.S.C. §§78j(b) and 78t(a)] and Rule 10b-5 promulgated thereunder by the SEC [17 C.F.R. §240.10b-5].

18. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §1331 and §27 of the Exchange Act [15 U.S.C. §78aa].

19. Venue is proper in this District pursuant to §27 of the Exchange Act, and 28 U.S.C. §1391(b) because QuantumScape maintains its headquarters in this District and many of the acts and conduct that constitute the violations of the law complained of herein occurred in this District.

20. In connection with the acts alleged in this complaint, Defendants, directly or indirectly, used the means and instrumentalities of interstate commerce, including, but not limited to, the mails, interstate telephone communications and the facilities of the national securities markets.

III. PARTIES

21. Lead Plaintiff Frank Fish purchased QuantumScape securities during the Class Period, as set forth in the certification, filed as Exhibit A on June 21, 2021 at ECF No. 131-1 and incorporated by reference herein, and was damaged thereby.

22. Plaintiff Kathy Stark purchased QuantumScape securities during the Class Period, as set forth in the attached certification, Exhibit B and was damaged thereby.

23. Plaintiff Mary Cranny purchased QuantumScape securities during the Class Period, as set forth in the attached certification, Exhibit C and was damaged thereby.

24. Defendant QuantumScape Corporation is a developer and manufacturer of a "solid-state" electronic vehicle battery, incorporated in the state of Delaware and headquartered in San Jose, California. As of December 23, 2020, the company had approximately 208 million shares of its Class A common stock and 156 million shares of its Class B common stock issued and outstanding. Shares of Class B common stock have 10 votes per share, while shares of Class A common stock have 1 vote per share. QuantumScape's Class A common stock trades on the New York Stock Exchange under the ticker "QS."

25. Defendant Jagdeep Singh ("Singh") is, and was at all relevant times, the Chief Executive Officer ("CEO") of QuantumScape and the Chairman of its Board of Directors. Singh co-founded QuantumScape and has served as its Chief Executive Officer and on QuantumScape's board of directors since its incorporation in May 2010. Prior to joining QuantumScape, he was the founder and Chief Executive Officer at Infinera Corporation (NASDAQ: INFN), a telecommunications company, from 2001 to 2009. Singh holds a B.S. in Computer Science from the University of Maryland College Park, an M.B.A. from the University of California, Berkeley, Haas School of Business, and a M.S. in Computer Science from Stanford University.

26. Defendant Kevin Hettrich ("Hettrich") is, and was at all relevant times, the Chief Financial Officer of QuantumScape. Hettrich has served as QuantumScape's Chief Financial Officer and head of Business Operations from September 2018 to the present. Prior to this, Hettrich served as QuantumScape's Vice President of Business Operations from March 2016 to March 2018, as Senior Director of Finance and Product Management from March 2014 to March 2016, as a Director of Product Management from March 2013 to March 2014, and as a Manager of Product Management from January 2012 to March 2013. Prior to joining QuantumScape, Hettrich served as a Private Equity Associate of Bain Capital, an investment firm, from September 2007 to July 2009. Hettrich also served as a Business Analyst at McKinsey & Company, a management consulting firm, from September 2004 to July 2007. Hettrich holds a B.A. in Economics from Pomona College, a M.B.A. from Stanford Graduate School of Business, and a M.S. in Environment and Resources from Stanford University.

27. Defendant Timothy Holme ("Holme") is, and was at all relevant times, a co-founder and Chief Technology Officer of QuantumScape. Holme has served as QuantumScape's Chief Technology Officer since January 2011 to the present. Prior to joining QuantumScape, he was a Research Associate at Stanford University from June 2008 to January 2011. Holme holds a B.S. in Physics, a M.S. in Mechanical Engineering, and a Ph.D. in Mechanical Engineering from Stanford University.

28. Defendants Singh, Hettrich, and Holme, are sometimes referred to herein as the "Individual Defendants." QuantumScape, and the Individual Defendants are sometimes referred to herein, collectively, as "Defendants."

29. The Individual Defendants, by virtue of their high-level positions at QuantumScape, directly participated in the management of the company and were directly involved in the day-to-day operations of the company at its highest levels. As such, they were privy to confidential, proprietary information concerning QuantumScape and its business, operations battery technology. As set forth below, the materially misstated information conveyed to the public was the result of the collective actions of these individuals.

30. As senior executives at a publicly held company with common stock registered with the SEC and traded on the NYSE, the Individual Defendants each had a duty to disseminate prompt, accurate, and truthful information with respect to the company's business, operations, and battery technology and to correct any previously issued statements that had become materially misleading or untrue, so that the market price of QuantumScape's publicly traded securities would be based on accurate information. Each Individual Defendant violated these requirements and obligations during the Class Period.

31. As a result of their positions of control and authority as senior executives, the Individual Defendants were able to and did control the content of the SEC filings, press releases, and other public statements issued by QuantumScape during the Class Period. Each Individual Defendant had the ability to correct the statements or prevent them from being released into the public sphere. Accordingly, the Individual Defendants are responsible for the accuracy of the public statements detailed in this amended complaint.

32. As a result of their positions of control and authority as senior executives, the Individual Defendants had access to adverse, undisclosed information about QuantumScape's business, operations, testing data and battery technology through their access to internal corporate documents, reports, tests, and conversations with other corporate officers and employees. The Individual Defendants knew or recklessly disregarded that these adverse undisclosed facts rendered the positive representations made by or about QuantumScape materially false and misleading.

IV. RELEVANT NON-PARTIES

33. Kensington Capital Acquisition Corp. (NYSE: KCAC) was a publicly listed special purpose acquisition company formed for the purpose of effecting a business combination in the

automotive sector. On November 25, 2020, the parties completed the business combination, Kensington changed its name to QuantumScape Corporation, and the combined company began trading on the New York Stock Exchange under the ticker "QS."

V. STATEMENT OF FACTS[1]

A. QuantumScape Background

34. QuantumScape was founded in 2010 and is engaged in the development of "next generation" solid-state lithium-metal batteries for use in electric vehicles.

35. In September 2020, QuantumScape announced that it had entered into a definitive agreement to go public through a reverse merger with Kensington Capital Acquisition Corp with an enterprise value of $3.3 billion. Kensington was a publicly listed special purpose acquisition company formed for the purpose of effecting a business combination in the automotive sector.

36. QuantumScape and Kensington issued a joint press release announcing their merger. The release described QuantumScape as "a leader in the development of next generation solid-state lithium-metal batteries for use in electric vehicles," and stated that, "[i]n the decade since the company was founded, QuantumScape has been exclusively focused on developing solid-state batteries and designing a scalable manufacturing process to commercialize its battery technology for the automotive industry."

37. On November 25, 2020, the parties completed the business combination, Kensington changed its name to QuantumScape Corporation, and the combined company began trading on the New York Stock Exchange under the ticker "QS."

38. Although no company has been able to do so at mass-market scale, QuantumScape claims to have developed a solid-state lithium-metal battery that is safer, have greater range, faster charge times and improved cycle life compared to conventional lithium-ion battery technology. Therefore, QuantumScape's success is entirely dependent on its ability to produce a solid-state EV battery using metallic lithium, that performs better than lithium-ion.

B. Capabilities of Current Lithium-ion Batteries

39. Lithium-ion batteries are named after the movement of lithium ions within them, and

[1] All emphasis herein is added unless otherwise indicated.

they power most rechargeable devices today. The element lithium (Li) allows batteries to be both portable and powerful; the 2019 Nobel Prize in Chemistry was awarded to scientists who worked on the idea during the 1970s. But despite their widespread use, lithium-ion batteries remain extremely complicated and still intrigue scientists to open the road for optimal efficiency.

40. Despite this, lithium-ion is the most efficient battery technology available, indicating a lot of space for further improvements. They can have a very high voltage and charge storage per unit mass and unit volume. They are also incomparable with the older batteries in terms of quality, output, half-life, and cost.

41. A battery is made up of an anode, cathode, separator, electrolyte, and two current collectors (positive and negative). A lithium-ion battery uses lithium ions as a key component of its electrochemistry and uses a separator with liquid electrolyte solution that keeps cathode and anode apart. The anode and cathode store the lithium. The electrolyte carries positively charged lithium ions from the anode to the cathode and vice versa through the separator. The movement of the lithium ions creates free electrons in the anode which creates a charge at the positive current collector. The electrical current then flows from the current collector through a device being powered (car, cell phone, computer, etc.) to the negative current collector. The separator blocks the flow of electrons inside the battery.

42. While the battery is discharging and providing an electric current, the anode releases lithium ions to the cathode, generating a flow of electrons from one side to the other. When plugging in the device, the opposite happens: Lithium ions are released by the cathode and received by the anode.

43. More specifically, as the battery goes through its discharge cycle, lithium atoms in the anode are ionized and separated from their electrons. Then, those charged lithium ions move from the anode and pass through the electrolyte until they reach the cathode, where they recombine with their electrons and practically neutralize.

44. In a typical lithium-ion cell design, there is a higher negative electrode capacity than positive electrode capacity. This is done to avoid metallic lithium plating during charge. For a battery in which metallic lithium is the anode, excess lithium is required as a precaution since lithium plating directly on copper foil is problematic.

45. In most developmental rechargeable cells with metal lithium anode, the excess lithium is provided during assembly using a thin lithium foil or evaporation of metallic lithium.

46. The cathode used in modern lithium-ion cells typically features Lithium Nickel Manganese Cobalt Oxide (NMC) or Lithium Nickel-Cobalt-Aluminum Oxide (NCA) formulation.

47. The specific usable capacity of these formulations ranges from 180 mAh/g for the NMC (Nickel Manganese Cobalt) (6,2,2) with metal ratios of $Ni_{0.6}Co_{0.2}Mn_{0.2}$ to about 205 mAh/gram for NMC (8,1,1) with metal ratios of $Ni_{0.8}$, Co $_{0.1}$, Mn $_{0.1}$ or NCA (Nickel Cobalt Aluminum), with metal ratios of about Ni $_{0.85}$, Co. $_{0.1}$, Al $_{0.05}$.

48. All three cathodes above are used in the industry with tradeoffs that balance energy, life, safety, and cost.

49. During the last two decades, lithium-ion batteries have reached the status of being the spearhead of the automotive market. They are the same technological advancement that enabled automakers to redefine their positioning towards fossil fuels and internal combustion engines. We observe a global transition towards electric vehicles, which continually pushes the boundaries of lithium-ion batteries for more power, longevity, and cost-effectiveness.

50. The past five years, advances in lithium-ion technology have been enormous. The ranges of 500 km (over 310 miles) are already feasible for electric vehicles, while the charging times are constantly being reduced thanks to rapid charging technology.

51. Many lithium-ion cell designs will achieve 80% capacity in less than 40 minutes. For example. Enevate's Silicon-Dominant cells delivery 80% capacity in less than 6 minutes.[2]

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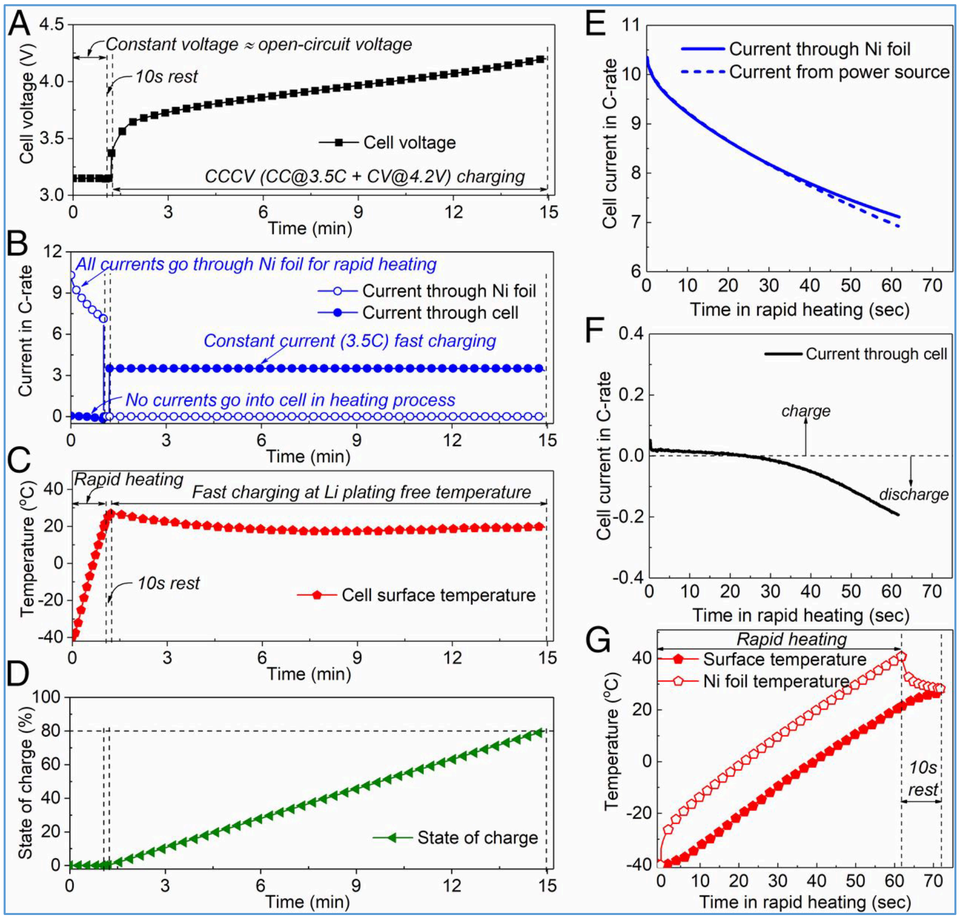
[2] Enevate, "Extreme Fast Charging + High Energy Density" (June 21, 2021 12:30 pm), https://www.enevate.com/technology/hd-energy-technology/.

52. Additionally, the below charts published on June 25, 2018, show the fast-charging capabilities of lithium-ion batteries at all temperatures. Diagram D below shows 80% charge in 15 minutes[3]:

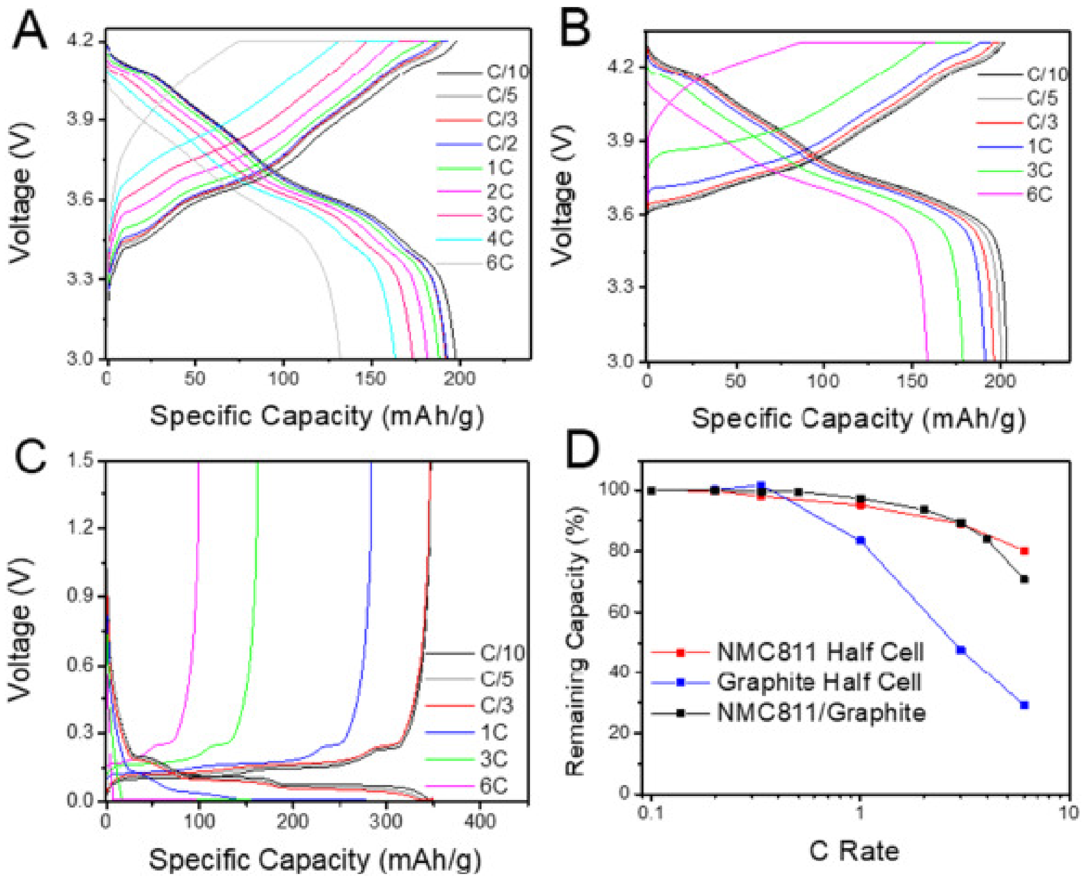


Time (min)	State of Charge (%)
3	5
6	30
9	45
12	62
15	80

53. Similarly, an article titled *"Identifying the limiting electrode in lithium ion batteries for extreme fast charging"* published in Electrochemistry Communications Volume 97, in December 2018, included the below chart. Chart 1A (turquoise curve) shows 80% capacity (160 out of 200 mAh/gram) at a 4C (15 minute) charge rate[4]:

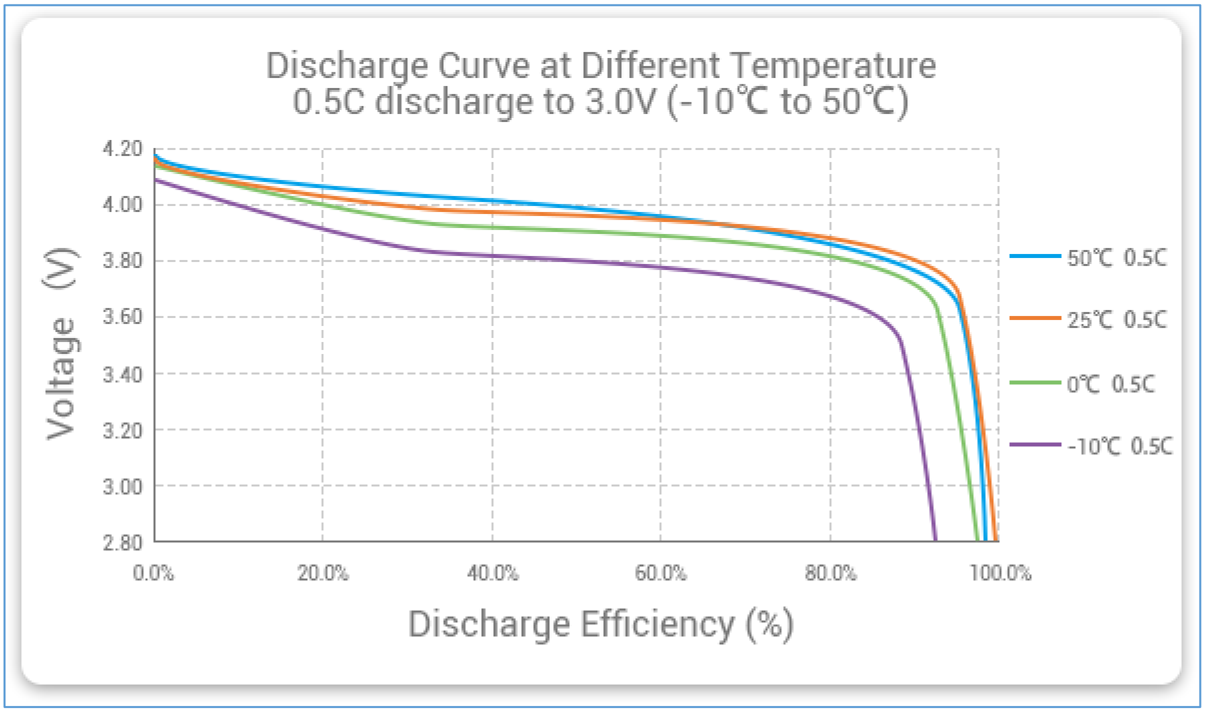
[3] Xiao-Guang Yang, Guangsheng Zhang, Shanhai Ge, and Chao-Yang Wang, Fast Charing of Lithium-ion batteries at all temperatures, 115 Proc. of the Nat'l Acad. of Sci. 7266 (2018), https://www.pnas.org/content/115/28/7266.

[4] Chengyu Mao, Rose E. Ruther, Jianlin Li, Zhijia Du, Ilias Belharouak, Identifying the limiting electrode in lithium-ion batteries for extreme fast charging, 97 Electrochemistry Comm. 37 (2018), https://www.sciencedirect.com/journal/electrochemistry-communications/vol/97/suppl/C.



54. Further, lithium-ion batteries are capable at operating at low-temperatures. For example, Grepow shows a cell that delivers over 90% of room-temperature (25°C) capacity at -10°C. This correlates to approximately 162 mAh/g based on a capacity of 180 mAh/g.[5]

[5] GREPOW, Low Temperature Batteries (June 21, 2021, 12:30 PM), https://www.grepow.com/page/low-temperature-battery.html.



55. Similarly, according to Innovative Battery Technology, typical lithium-ion can deliver 96% of room temperature C/5 capacity at 0 centigrade. This translates to approximately 173 mAh/gram in a NMC 6,2,2 cathode.

56. Additionally, lithium-ion batteries have expanded range capabilities. For example, the Tesla Roadster boasts a manufacturer's range of 620 miles, with a rapid charge to 100% in 44 mins. Further, the Tesla Model S Long Range has a manufacturer's range of 375 miles, with a rapid charge to 100% in 38 mins. Similarly, Tesla's Model 3 Long-range (Tesla's more affordable model), has a manufacturer's range of 340 miles, and can rapidly charge to 100% in just 22 mins. In addition, Tesla's Model 3 battery has a minimum life span of 1,500 charge cycles, or over 300,000 miles.

57. Amprius also makes a lithium-ion battery that has an energy density of 450 Wh/kg. Amprius's battery uses a patented silicon nanowire anode and provides up to 100% improvements compared to standard lithium-ion batteries.

C. Solid-State Batteries and their Historical and Traditional Obstacles

58. Solid-state batteries, as the name suggests, do away with the heavy liquid electrolyte that lives inside lithium-ion batteries. The replacement is a solid electrolyte, which can come in the form of

a glass, ceramics, or other materials. The overall structure of a solid-state battery is quite similar to that of traditional lithium-ion batteries otherwise, but without the need for a liquid, the batteries can be much denser and compact. Solid-state batteries expend energy and recharge much in the same way as traditional lithium-ion units do. The key characteristic that defines a solid-state cell is the separator, which is the material that keeps the anode and cathode apart, is entirely solid-state. Instead of a conventional liquid electrolyte in the separator, it uses a solid electrolyte.

59. Solid-state batteries also have the potential to be safer and more durable over the long run. When damaged or otherwise compromised, lithium-ion batteries can experience what is known as thermal runaway, which happens when one battery cell's increase in temperature causes a similar reaction on other battery cells. Sometimes, this process halts itself inside the battery pack, but at other times the runaway reaction can cause a fire. The liquid electrolyte can be flammable, making battery fires extremely dangerous and toxic. Solid-state batteries can avoid this issue without flammable liquid inside.

60. Despite the potential benefits of a solid-state battery, as is usual with technology such as this, it is essential that the new system outperforms what is currently available to gain market share.

61. Every known solid electrolyte has one or more drawbacks that must be overcome for application in a functional battery. Success is not assured, and particularly for transportation, there are impediments to development and acceptance of solid-state batteries, including poor control of materials and interface, processing challenges and cost, performance that does not show compelling advantage over advanced lithium-ion technology, and high cost in maintaining stack pressure for solid-state battery packs.

62. The potential increase in energy density for a lithium-metal anode battery has been known since the mid-1970s. However, it has also been known that lithium-metal anodes (solid-state batteries) do not work with conventional liquid electrolytes due to the twin issues of dendrite formation when a battery is being charged and rapid impedance growth from a chemical side-reaction between the liquid electrolyte and the lithium metal. Scientists have tried to make batteries with solid lithium metal since the 1800's but failed because lithium quickly develops dendrites.

63. Dendrites are needle-like metallic growths and deposits of lithium metal that resemble a tree, roots, or a fungus. Once a dendrite develops, it quickly grows out of control and the battery shorts and fails. QuantumScape's CEO describes dendrites as a "monster that's lurking" and that "with enough cycles it will just burst out" like "that monster in Alien in the '80's…."

64. Venkat Srinivasan, the director of the Argonne Collaborative Center for Energy Storage Science, has spent a decade researching solid-state batteries at the national lab outside Chicago. He says that finding a separator material that allows lithium ions to flow freely between electrodes while blocking dendrites has been by far the biggest challenge. Typically, researchers have used either a plasticky polymer or a hard ceramic. Although polymers are the separator material of choice in liquid electrolyte batteries, they are inadequate for solid-state cells because they do not block dendrites. And most ceramics used for experimental solid-state batteries have been too brittle to last more than a few dozen charging cycles.

65. "These dendrites are like the root of a tree," says Srinivasan. "The problem that we're trying to solve is, how do you mechanically stop this root system from growing with something solid? You can't just put anything you want, because you have to feed ions back and forth. If you don't do that, there is no battery."

66. Impedance refers to the internal resistance of the cell; growth in this resistance reduces the energy capacity of the cell as well as its ability to work at high rates of power.

67. Further, in order to be functionally viable, safe and capable to be used in electronic vehicles, any solid-state separator needs to:

a. have lithium-ion conductivity similar to or better than today's liquid electrolytes;

b. be chemically and electrochemically stable to lithium metal; and

c. resist the formation of lithium-metal dendrites.

68. Despite decades of work, and many classes of separator materials, the industry has not found any separator materials capable of meeting these requirements.

69. The electronic battery space, and especially solid-state batteries, is particularly known for the number of frauds and flops that once made audacious claims about its technology, only to later reveal that the information was overstated. As stated by Professor Stan Whittingham, the coinventor of

the lithium-ion battery and member of QuantumScape Science Advisory Committee, at QuantumScape's December 8, 2020, battery presentation: "The efforts in solving electrolytes is increasing fast, it looks very encouraging but one has to be very, very careful because there's much more hype in the literature than there is meat. And so really nothing has changed since Edison made his comments a long time ago about 'don't believe anything you read about batteries. They're worse than snake medicine.'"

70. Often companies make cells and report results using compromised test conditions to manipulate their data. In particular, the following are some of the most commonly used compromises:

a. **A carbon or carbon-silicon anode instead of lithium metal**: Reverting to a hosted anode sacrifices the benefits of lithium-metal anodes, such as energy density, fast charge, cycle life, safety, and lower cost. Thus, these approaches are not the step-change in performance required for mass market EVs.

b. **Low current density**: At low current density, such as 1-2 mA/cm2, even liquid can be made to cycle with lithium metal. However, such low current densities are not useful for automotive applications.

c. **Elevated temperatures or pressures**: At elevated temperatures, lithium metal is softer and less likely to form dendrites. In addition, high temperatures increase the conductivity of materials like polymers and sulfides and reduce the resistivity of cathode coatings. However, requiring elevated temperature makes the cell impractical and too expensive for most commercial applications. Elevated pressures similarly provide a way to "squeeze" lithium into smoother structure, but overly high pressures such as those above 10 atmospheres are simply impractical even in automotive applications.

d. **Low cycle life**: Because of the stochastic nature of dendrites and the progressive nature of impedance growth, many cells made with materials that do not meet the above requirements can deliver some cycles, but not enough to be commercially viable, and the cells are not reliable enough to be usable in real applications.

e. **Excess lithium on the anode**: Some efforts start with an excess layer of lithium on the anode, which makes the process of plating lithium easier, but at the expense of energy

density and cost, rendering these approaches impractical for automotive applications as well.

f. **Pulse Tests**: Pulse tests involve a series of constant current charges and discharges as opposed to testing cells using direct current charging. Pulse charging interrupts the direct current charging with periods of relaxation and discharge pulses. This interruption prevents the steep concentration of positive lithium-ion gradients that form dendrite tips during charging—an intrinsic part of electrodeposition— inhibiting runaway dendrites propagation that would lead to the cell overheating and potentially adverse events.

g. **Cell Size**: One of the most common tricks in battery research is using tiny cells with no useful capacity to claim a "breakthrough." The smaller a cell, the easier it is to prevent dendrites, and manipulate data.

71. By using any of the above tricks or compromises, companies are able to manipulate data to show dendrite resistance and overstate the capabilities of its battery technology.

72. Even if a company does develop a solid-state battery, manufacturing is a huge problem for solid-state batteries. Scaling a battery from a subunit of a single cell to a full cell and eventually to a full battery pack can create a lot of problems.

73. When batteries are made in small batches, it is easier to eliminate defects that crop up during the production process. But once you start manufacturing batteries at scale, it can be difficult to control defects, which can quickly sap a battery's performance and lead to dendrites. Even though a material may look promising at the small scale, in the scale-up these defects could become a bigger problem. Real-world operation is very different from lab-scale operation.

D. QuantumScape's Claims about Solid State Breakthroughs and Performance Data

74. Despite the significant challenges in creating a solid-state battery, QuantumScape alleges that it has solved the solid-state battery puzzle. QuantumScape claims it has produced a solid-state battery that (i) has a lithium-ion conductivity similar to or better than today's liquid electrolytes; (ii) is chemically and electrochemically stable to lithium metal; and (iii) resists the formation of lithium-metal dendrites. QuantumScape alleges that its battery meets these requirements without requiring the compromised test conditions described above.

75. The thin cell unveiled by QuantumScape is about 70mm x 85mm, has approximately 200 mAh, and is eventually to be stacked together with about 100 others to form a full cell that is about the size of a deck of cards. Powering an EV will require hundreds of those deck sized cells, resulting in hundreds of thousand battery layers. However, the company has not tested a fully stacked cell. The more layers that are stacked, the more separator films are needed which leads to a higher likelihood of defects and failure. Further, the increase in stack cells means additional costs as it leads to the need to scale up production capacity, including tools, personnel, and input materials. As of February 2021, QuantumScape had tested up to a 4-layer stacked cell, well short of the 100 needed to form even a single full cell.

76. QuantumScape's solid-state battery purports to have no traditional anode, instead consisting of essentially a two-layer battery which only has a cathode and a separator, as manufactured. QuantumScape's lithium-metal anode is then formed in-situ during the first charge. "When you first charge it up, lithium-ions flow out of the cathode, through the separator and deposit themselves on the separator, creating a layer of pure metallic lithium, which is the anode. When you discharge the cell, it goes back to initial state, and you can see that it cycles back and forth during these two states."

77. According to QuantumScape, the lithium-metal anode enabled by its solid-state separator addresses a number of limitations of conventional lithium-ion batteries, since some of these problems stem from the carbon anode as well, including:

a. **Energy density**: Since the carbon that makes up the anode takes up space and has mass, eliminating it increases the energy density of the cell.

b. **Power density/fast charge**: The lithium that cycles through the cell into the anode has to diffuse into the carbon at a rate that is governed by fundamental material properties of graphite. Any attempts to drive the lithium ions into the carbon anode particles faster than this natural rate of diffusion can result in the lithium "plating" on the surface of the particle instead of diffusing into it causing capacity loss and failures. Eliminating the carbon removes this limitation, allowing for fast charge without any adverse impacts.

c. **Cycle life**: The cycle life of the cell is partly limited by an irreversible chemical side reaction (i.e., an unwanted reaction) at the interface of the carbon particle and the liquid

electrolyte, which consumes a little bit of lithium on every charge-discharge cycle, resulting in a cumulative loss of capacity (and therefore energy) over the life of the cell. With no carbon in the anode this side reaction should be eliminated, resulting in improved cycle life for the cell.

d. **Safety**: The polymer separator and the liquid electrolyte used in lithium-ion batteries are both hydrocarbons and are combustible. Starting a fire requires three elements: A fuel, an oxygen source, and a heat source. Because the electrolyte — a fuel — is in direct contact with the cathode, which is an oxide, the only other element needed to cause a fire is a heat source. Many abuse conditions, from internal short-circuits to accidents, can provide that heat source. Replacing the polymer separator with a solid-state ceramic separator that is thermally stable to very high temperatures and does not burn (since it is already oxidized) both reduces the fuel content of the cell and provides a thermally stable barrier between the anode and cathode.

e. **Cost**: The costs of the materials associated with the carbon anode and the anode electrode manufacturing process can be eliminated by replacing the carbon anode with a lithium-metal anode. In addition, the conventional formation process, one of the most expensive parts of the battery manufacturing process in which the assembled cells must sit in storage for a period of weeks to form the proper interfaces on the electrode particles and allow for the identification of manufacturing defects, can be dramatically simplified.

78. Further, QuantumScape has indicated that its technology eliminates the need for an anode, allowing the battery to charge more quickly for an estimated up to 80% capacity in roughly 15 minutes, retains more than 80 percent of its capacity after 800 charging cycles, is noncombustible, and has a volumetric energy density of more than 1,000 watt-hours per liter at the cell level.

79. Throughout the Class Period, Defendants materially misrepresented the abilities of its solid-state battery, relying on compromised tests to disseminate misleading data to the public. These statements led investors to believe that QuantumScape's battery was more advanced and capable than it was comparing to today's lithium-ion, that the "fundamental science risk" was resolved and, as a result,

QuantumScape was ready to "ramp[] up production" and move on to the "final automotive qualification process."

80. In a November 27, 2020 interview on CNBC's "Squawk Box" Defendant Singh told investors, "What we are confident about is that the fundamental science risk is behind us."

81. On December 3, 2020, Defendants announced on that they would hold a public showcase, resembling Tesla's popular "Battery Day," releasing for the first-time results and specifications from its battery tests.

82. On December 8, 2020, Defendants held their showcase, filing a press release and slide deck with the SEC, and a live presentation on "YouTube." The slide deck is attached hereto as Exhibit D and is incorporated by reference.

83. QuantumScape's presentation made several claims about its battery's technology ability, representing that the science risk was behind them. QuantumScape claimed that the data released demonstrated that "its technology addresses fundamental issues holding back widespread adoption of high-energy density solid-state batteries, including charge time (current density), cycle life, safety, and operating temperature."

84. QuantumScape further stated that its "solid-state battery is designed to enable up to 80% longer range compared to today's lithium-ion batteries," "[s]olid -state separator resists dendrites even at very high current density," data performance results show its "solid-state separators are capable of working at very high rates of power, enabling a 15-minute charge to 80% capacity, faster than either conventional battery or alternative solid-state approaches are capable of delivering," and that "the data shows QuantumScape battery technology is capable of lasting hundreds of thousands of miles, and is designed to operate at a wide range of temperatures, including results that show operation at -30 degrees Celsius."

85. QuantumScape indicated that the data shows that QuantumScape's battery meets all of the "requirements of high energy density (1,000 Wh/L), fast charge (i.e., high current density), long cycle life (greater than 800 cycles), and wide temperature-range operation."

86. **Energy Density**. During the presentation, Defendants made a number of representations about its battery's energy density compared to today's lithium-ion. Singh stated during the presentation,

"the solid-state, the lithium metal anode case you can see that the solid-state, the lithium metal anode case is much more energy dense than the conventional lithium-ion battery because it doesn't have all the space and mass and volume required for the carbon or carbon silicon anode. That's the core, the reason for the advantage that solid-state batteries provide over lithium-ion."

87. He continued, "And if you do the math, it turns out that you can end up with on the order of a thousand-watt hours per liter with this solid-state architecture, which compares with energy density of around the 700s, in terms of watt hours per liter for conventional lithium-ion technologies."

88. **Fast Charge**. Defendants also represent that QuantumScape's charging capabilities vastly outweigh those of lithium-ion. For example, in Slide 17 of Defendants' presentation, Defendants represent that QuantumScape's battery cell achieves 80% charge in under 15 minutes, versus current lithium-ion batteries that take 40 minutes.

89. Defendant Singh states, "The gray curve at the bottom is today's fast charge capability of conventional lithium-ion batteries used in EVs. You can see that they can charge to a hundred percent in about an hour or 80 percent in about 40 minutes. . . . With the QuantumScape technology, the solid-state separator already prevents dendrites, so there's no reason to slow down the rate of charge. You can start charging it at a really high rate and continue charging it at that really high rate until it gets all the way up to 80 percent in less than 15 minutes. This is not only better than any of the solid-state technology, but it's better than you can achieve with conventional lithium-ion batteries, which always have to manage this potential dendriting issue at higher rates of charge."

90. He also affirmatively states, "It turns out you can now get a 15-minute charge, which you cannot do with conventional batteries."

91. **Dendrites**. Defendants claim that QuantumScape's battery "resists dendrites." In order to substantiate the claim that the QuantumScape battery "prevents dendrites", QuantumScape published a single slide, Slide 18, in its December 8, 2020 presentation that purports to show a study that proves "[s]olid-state separator resists dendrites even at very high current density . . . [b]ased on solid-state separator material testing." Defendant Singh commented on the slide stating: "This is a test that tries to look at how much current density the separator can handle without dendriting and what you see is on the axis on the left, that's the current density and by way of comparison, conventional solid-state efforts

under these conditions really can't get much above a few single digit milliamps per centimeter squared before they fail. . . This is a really remarkable result. It blows away any previous demonstration in the world of solid-state separators. This was done at a lithium/lithium symmetric cell, which is a material level test at 45 degrees Celsius, and you can see here that it -- you know, there's a lot of headroom between what the application requirement is for fast charge and the capability of this material."

92. **Life Cycle**. QuantumScape also claims its cell has an "aggressive automotive power profile," showing a simulation of a cell powering a car on a track on Slide 19 of the December 8, 2020 presentation. Defendant Singh states, "Now what you see with this aggressive test is that the cell goes well over a thousand laps, which corresponds to more than a hundred cycles of charge/discharge at these aggressive conditions, with minimal degradation of capacity. By contrast, today's best lithium-ion cells start degrading within a few tens of cycles. So again, this result is really remarkable. Not only is it better than any previous solid-state result, but it actually blows away even today's best lithium-ion technologies."

93. QuantumScape also states on Slide 20 that its battery can be cycled 1000+ times, and still exhibit 80% energy retention an equivalent to 300,000 miles. Defendant Singh stated in relevant part: "There is zero excess lithium in these cells. These are thick cathodes, over three milliamps symmetry squared, and this is the commercial area of the cells. So these are all real world conditions. In fact they're aggressive real world conditions because of the charge rates and discharge rates. They are not sort of a compromised test conditions. And you see the battery lasts over 800 cycles, with well over 80 percent of capacity retained."

94. **Low Temperatures**. QuantumScape also represents that its battery performs better in low temperatures than today's lithium-ion. states "[o]perability shown at lower end of automotive temperature range" was materially false and misleading. Commenting on Slide 21 of QuantumScape's presentation Defendant Singh stated: "Another limitation that solid-state batteries sometimes have is they only operate at elevated temperatures. To address -- to demonstrate that we don't have that limitation, we have taken our material and tested it all the way down to negative 30 degrees and you still get substantial capacity out of the cell, even at negative 30. By contrast, lithium-ion technologies would have less capacity than we have, even at negative 25 degrees." "Another limitation that solid-state

batteries sometimes have is they only operate at elevated temperatures. To address -- to demonstrate that we don't have that limitation, we have taken our material and tested it all the way down to negative 30 degrees and you still get substantial capacity out of the cell, even at negative 30. By contrast, lithium-ion technologies would have less capacity than we have, even at negative 25 degrees."

95. **Battery life in low temperatures.** In addition to claiming that its battery performs better than lithium-ion at low temperatures, QuantumScape implies it has long cycle life in cold conditions. QuantumScape's December 8, 2020 presentation included a chart on Slide 22 that implied that its batteries had a long-life cycle and out-performed conventional liquid lithium-ion batteries in cold conditions. Defendant Singh stated in relevant part: "And this is a new batch of cells we put out recently, so it's achieved about a hundred cycles. As you can see, cycling is going really well. These cells are still on test with very, very good and reliable performance. So low temperature performance is not a concern with this particular material system that we have."

96. **Safety**. Defendants also represented that its battery was safer than lithium-ion. For example, in its December 8, 2020 presentation, on Slide 23, QuantumScape states, "Solid state separator is not combustible and has high thermal stability . . . Lithium anode is chemically stable with separator and foil, even when molten." Defendants Singh stated in combination with the slide, "to address the safety issue, this is a test called the DSC test, which stands for differential scanning calorimetry, and really all it is, is you take lithium metal, put it in direct contact with either a liquid electrolyte or in our case a solid-state separator and heat up the pair of materials, and what you see is with the liquid plus lithium scenario, when you get to lithium metallic temperatures of about 180 degrees Celsius, you see a massive exothermic reaction which corresponds to a fire. And in the case of solid-state separator with lithium, even at lithium melting temperature, you see no exotherm, in fact you see a small endotherm, which represents lithium essentially absorbing energy in order to melt, and no reaction. So this demonstrates the material is in fact inherently stable, even to molten lithium, which is a very encouraging result."

97. During the presentation Singh indicated that its technology was ready for commercial deployment stating, "[s]o this really demonstrates that this technology is in fact ready for commercial

deployment as soon as we can scale up production and make multilayer versions of these cells. A super exciting result."

98. The day after the presentation Deutsche Bank published an analyst report entitled "'VW's Battery Day' - very solid," commenting on the presentation. The report stated that, "we believe that the announcements of QuantumScape are quite impressive and positive for its JV with VW, potentially accelerating VW's BEV plans – which we like the stock for anyway." The report also provided two charts from QuantumScape, comparing their battery with "today's lithium" battery, which claimed superiority in system energy, range, and charge in luxury performance vehicles. And mass market sedans.

E. The *Seeking Alpha* Article leads Investors to Begin Questioning QuantumScape's Presentation and Data.

99. On January 4, 2021, prior to the market opening, *Seeking Alpha* published a research report by Dr. Brian Morin titled "*QuantumScape's Solid State Batteries Have Significant Technical Hurdles To Overcome*." Dr. Morin serves as Director and Vice President of the National Alliance for Advanced Technology Batteries, has a PhD in materials physics from the Ohio State University, and has authored over 250 global patent applications on subjects including molecular magnets, plastics additives, textiles, advanced fibers, textiles and lithium-ion batteries. Dr. Morin disclosed that he has no financial interest in QuantumScape.

100. Dr. Morin's report reviewed QuantumScape's December 8, 2020 presentation and offered his expert interpretation of the results presented by QuantumScape. Dr. Morin's report revealed to the market that QuantumScape had "overstated" a number of successes related to its batteries. Specifically, the report stated in pertinent part:

> **Successes**
>
> Let's start by saying that building a solid state battery that will function at the rates and temperatures needed for real world applications is hard - very, very hard. So hard, in fact, that nobody has done it. I've read many dozens of research papers where scientists have tried, and tout their ability to get one or more features to behave, but then apologize for the lack of a complete working battery, and lay out the significant challenges ahead. Much of the below is an interpretation of their technical presentation, which can be found here, and the webinar, which is stored on YouTube here. So far, they have:

- **Electrolyte**: a free standing, thin solid electrolyte that will sit between the anode and cathode. While we don't know much, it does deliver some relevant performance.

- **Pouch Cells**: a functioning single layer pouch cell, at 70 x 85 mm, 3.2 mAh/cm2, for a total capacity of 190 mAh and 0.7 Wh. For comparison, an iWatch battery is 205 mAh, and an iPhone 12 Pro battery is 3,768 mAh. It would take 20 of these cells to power your phone, and 100,000 to power a Tesla.

- **Lithium Metal Anode**: They are using a thin lithium metal anode, which will help them achieve high energy density...someday.

- **Fast Charging**: 80% capacity in 15 minutes, which is a considerable challenge since dendrites are known to form in solid state electrolytes at fast charging rates. More on this later.

Areas of Overstated Success

All of these areas below are described as successful, because they are much better than has been achieved with solid state batteries in the past. But they are completely unacceptable for real world field electric vehicle performance.

- **Power:** They have done 1200 circuits of a 90 second OEM specified track simulation, which pulled pulses of 6C. In this track, 9 circuits is full depth of discharge, after which the battery was heated to 45 degrees C (113 degrees F) and charged to 80% in 15 minutes. The cell lost about 10% of its capacity in this 130 full-depth-of-discharge (FDOD) cycle test, meaning the battery will only last for 260 FDOD cycles or about 75,000 miles of aggressive driving. There is a note on the slide that it occurs at 3.4 atm, which likely means at high pressure. I'll comment on this later.

- **Range:** In much gentler, 1C / 1C cycling at 30 degrees C, the cell makes it for 800cycles, or 240,000 miles. Respectable, but not better than the vehicles on the road today.

- **Low Temperature Operation:** They show discharge curves at 0 to -30 degrees Celsius, achieving 90 - 130 mAh/g active specific capacity. Comparing to NMC811 active specific capacity of 200 Ah/kg, the available current is from 45 - 65% of the room temperature capacity, but with an accompanying significant voltage drop. Based on voltage drop, capacity loss and the low rate of this test, this author estimates between a 50 – 80% loss in range during cold months. Also, note that the temperature capability of solid state batteries is VERY temperature sensitive - thus the power and cycle tests at 30 and 45 degrees above would have been significantly worse if run even a few degrees lower.

- **Low Temperature Life:** They show 100 or so cycles at -10 degrees C. Respectable, except that these cycles are at C/5 charge and C/3 discharge. Thus, not 80% in 15 minutes, but rather 5% charge in 15 minutes.

Other Significant Challenges

There are other challenges they do not mention, which will have to be overcome before they can put the first car in the field. Remember that they have spent $300 million so far, so these are not challenges that they didn't have the resources to address, but rather ones they have not solved yet and so remain silent about. Many of these are related, and come from the fact that they are using a brittle, ceramic electrolyte. These include:

- **Multi-layer cells**: They have been unable to make multi-layer cells. My expectation is that it is because of the unstable interface between the cathode, which expands as much as 10% on discharge, and the solid state electrolyte, which will not expand at all. They likely do their cycling under high isostatic pressure (remember the 3.4 atm mentioned earlier?), which will not flow through to inner layers. The inner layers will also be more rigidly constrained, so suffer more from the interfacial decay with cycling. Needless to say, 100,000 of their tiny pouch cells will never make a practical vehicle. It's important to mention here that, if your technology works, making a multilayer pouch cell is an easy afternoon's work.

- **Vibration and Dendrites**: The electrolyte is very, very stiff. It is well documented that dendrites will not grow through solid, single crystal garnet electrolytes. However, they grow freely at grain boundaries and defects. In their pristine, temperature and pressure controlled and vibration-free labs, they can get the cells to cycle. But in a rugged SUV or on our terrible South Carolina roads, cracks and other defects will become plentiful and dendrites will grow. This will in the best case destroy cycle life, and in the worst cause the battery to explode.

- **Lithium Metal Ignition**: They tout using lithium metal to increase energy density. But they don't mention that lithium metal auto-ignites at 179 degrees Celsius, generating 200 - 300 kJ/mol, or 30 - 40 kJ/g, a massive amount of energy - about three times higher than ethylene carbonate, a common component of lithium ion electrolytes. Pure lithium is the second most energetic element behind beryllium, and could be used as a component of rocket fuel (with an oxidant). In essence, they have replaced a burning separator and electrolyte for a much more flammable and energetic burning anode. There is plenty enough energy in the battery to raise the lithium to its ignition temperature, and if exposed to oxygen or water, it will likely ignite itself. There is plenty of oxygen available in the cathode materials. Here are some references on lithium metal autoignition (Reference 1, Reference 2, Reference 3, Reference 4)

- **Cost**: They claim lower cost, but are actually eliminating only one of the least expensive components - graphite. While this is true, they will have the added cost of building up their thin ceramic electrolyte and sintering it at high temperatures. My guess is that early on, their yields will be just terrible, if they can achieve production scale at all.

Summary

- Given their success so far and their access to capital, I do think QuantumScape will succeed in getting a battery to market. However:

- It will have lower energy density than Amprius has achieved today.

- It will likely first show up in watches and wearables, then maybe phones.
- It will take much longer and cost much more to scale than they think.
- It will not be able to withstand the aggressive automotive environment.
- It will be far more expensive than today's lithium ion batteries, and will likely never achieve lower cost than contemporary lithium ion batteries.
- Once a suitable cell size is made, it may not be any safer than today's lithium ion batteries.

101. Dr. Morin's report revealed to investors that QuantumScape had overstated a number of data points, including (i) power, (ii) range, (iii) low temperature operation, (iv) low temperature life, and (v) energy density, and omitted materially information related to (vi) dendrites, (vii) safety and (viii) cost.

102. The above information revealed to the market that QuantumScape manipulated some of its tests to overstate its data. For example, Dr. Morin's report revealed that during the power test, Defendants heated up the battery to 45 degrees Celsius in order to charge the battery 80% in 15 minutes. It also noted that based on these conditions, the battery would only be able to last for about 75,000 miles.

103. Similarly, Dr. Morin noted that in order to achieve a 240,000-mile range, QuantumScape ran a significantly gentler test, charging the battery over 1 hour. As stated by Dr. Morin, this is not better than vehicles on the road today.

104. In addition to applying heat during fast charging, and running gentler tests to manipulate the data, Dr. Morin also noted that while QuantumScape pointed to achieving an active capacity of 90-130 mAh/g between 0 to -30 degrees Celsius, it omitted the fact that this would result in a significant range loss of between 50-80%. Therefore, despite promoting its operations in low temperatures, QuantumScape's battery does not perform as well as lithium-ion today.

105. Dr. Morin also revealed that QuantumScape's battery life only performed well at low temperatures when charging at 5% in 15 minutes, rather than the 80% in 15 minutes that QuantumScape promoted its battery capable of.

106. Dr. Morin also noted that QuantumScape omitted a number of other challenges that QuantumScape would need to overcome. For example Dr. Morin noted that QuantumScape failed to

provide any data relating to dendrites without elevated temperatures. Additionally, he noted the safety risks of lithium metal. Finally, Dr. Morin noted the increased costs likely resulting from QuantumScape's battery.

107. As a result, investors began doubting and questioning QuantumScape's data and results. When Dr. Morin's report was published and the true nature was partially revealed to the market, QuantumScape's stock price plummeted from a close of $84.45 on December 31, 2020, to a close of $49.96 on January 4, 2021, a decline of 40.84%, on unusually heavy trading volume of 84.7 million shares.

108. Despite investors' doubts about QuantumScape's presentation and data, Defendants doubled down, repeating the prior representations about QuantumScape's technology.

109. After the *Seeking Alpha Article* was published, on January 4, 2021, Singh appeared on CNBC's "Closing Bell" defending the December presentation, stating, "[w]e have something that has never been shown to the world before, a solid-state system that delivers levels of performance that are really record breaking not only in comparison to other solid-state efforts, but even in comparison to conventional lithium-ion technology."

110. On January 15, 2021, Defendant Holme published an article on LinkedIn reiterating the performance data revealed at the December 8, 2020, presentation in order to respond to "the surge in interest" and elaborated on the data. In pertinent part, Holme provided "Additional Key Points" relating to dendrites, energy density, and cost.

111. On February 16, 2021, QuantumScape published its Shareholder Letter for the Fourth Quarter of 2020, signed by Defendants Singh and Hettrich, again telling investors that its battery was superior to lithium-ion, stating, "The lithium-metal anode enables higher energy density than is possible with conventional anodes (as high as 1,000 Wh/L compared with approximately 711 Wh/L for conventional cells used in today's best-selling EVs), enabling longer driving range, while simultaneously delivering high rates of power (for fast charge), long cycle life, and improved safety, addressing the fundamental issues holding back widespread adoption of battery electric vehicles."

112. Discussing the December 8, 2020, presentation, Defendants Singh and Hettrich stated in the letter, "In addition to enabling high energy density, the data we shared, based on the testing of single

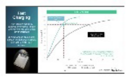
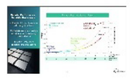
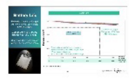
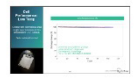
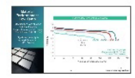
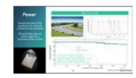
layer battery cells, shows that, unlike previous solid-state efforts, our solid-state separators can work at very high rates of power, enabling a 15-minute charge to 80% capacity, faster than either conventional batteries or alternative solid-state approaches can deliver without rapidly losing capacity. Both conventional solid-state efforts and the commercial lithium-ion energy cells used in automotive applications typically fail from dendrite (needle-like crystals of lithium metal which can grow across the separator and short-circuit the cell) formation or impedance growth during charge at these rates of power."

113. The next day, on February 17, 2021, Singh appeared on CNBC indicating that "the chemistry is largely behind us." Similarly, on February 25, 2021, Singh appeared for an interview on Yahoo! Finance Live commenting on the December 8, 2020, presentation, stating "We showed a solid-state cell that could perform under uncompromised testing conditions."

F. The *Scorpion Capital Report* Further Reveals Issues with Defendants' Data and Previous Statements.

114. On April 15, 2021, a research firm called Scorpion Capital published a 188-page report, titled "QuantumScape (NYSE: QS) *A Pump and Dump SPAC Scam by Silicon Valley Celebrities, That Makes Theranos Look Like Amateurs*." Attached hereto as Exhibit E, and incorporated by reference. Scorpion Capital revealed to the market that QuantumScape had used a number of compromises during its testing, including cell size, elevated temperatures, and "pulse tests" to promote and published six "[p]hony claim[s]" relating to its battery technology. These claims included: a) solid state material resists dendrites; b) battery performance in low temperatures; c) fast charging to 80% in under 15 minutes; d) long battery life to 1000+ charge/discharge cycles; e) battery life in low temperatures; and f) aggressive automotive power profiles.

115. Scorpion Capital revealed that one of the compromises that the Scorpion Capital reports QuantumScape using is a variety of different cell types, sizes, temperatures, and charge rates, or omits key information entirely, rather than using the same prototype for each test. The following chart indicates the cells used during QuantumScape's testing:

	Fast charge	Dendrite resistance	Battery life	Low temp cycle life	Low temp operation	Power
						
Prototype size	70x85mm	Omitted	70x85mm	70x85mm	30x30mm	30x30mm
Configuration	Single layer pouch cell	Li/li symmetric cell	Single layer pouch cell	Single layer pouch cell	Single layer, pouch cell?	Single layer, pouch cell?
Charge/ discharge rate	15 min charge	Varies	1 hr/1 hr	5 hr/3 hr	3 hr/3 hr	15 min charge
Temperature	30 C	45 C	30 C	-10 C	30 C charge, discharge varies	45 C
Pressure	3.4 atm	Omitted	3.4 atm	3.4 atm	3.4 atm	3.4 atm

** Scorpion Capital Report, page 29.*

116. As noted by a former employee the lack of consistency from test to test is "weird". He states, "Their graphs are not consistent. You should be consistent with the cells, same size, from the same batch, or from a different batch with the same size. That's weird to me." This information revealed to the market that QuantumScape had used a number of compromises during its testing. By using small irrelevant cells, omitting the size of the cell used, and using elevated temperatures, Defendants were able to manipulate the test results to show that QuantumScape's technology was able to prevent dendrites, was more developed and had better capabilities than it did in reality, and exceeded what was capable in lithium-ion batteries.

117. **Dendrite Resistance.** The Scorpion Capital Report also cast doubt on QuantumScape's dendrite claims. The Scorpion Capital Report interviewed several experts in the field and former employees to determine that QuantumScape used a number of tricks and test manipulations to show that its battery resists dendrites. This includes: (i) using a Li/Li symmetric cell instead of an actual battery cell, (ii) using a "pulse test" rather than a continuous test, (iii) conducting the test in high temperatures;

(iv) omitting the size of the cell used in the test; (v) and only showing data for a one-time test of a single cell, rather multiple tests on the same cell or a group of cells, in order to achieve its goal.

118. QuantumScape disclosed that its test was run with a Li/Li cell but omitted the fact that this is not a real battery cell capable of running in real world conditions. A Li/Li cell consists of thick lithium foil on both sides, and the separator between the two pieces of foil. According to a battery expert interviewed by Scorpion Capital, "This is lithium/lithium. It's not a battery. You just have a thick lithium foil on both sides, and you've got your fancy solid state separator between the two pieces of lithium foil, probably just some pressure on it, and you've warmed it up to 45 C and then you're driving a small amount of current." A second expert Prof. Jeff Dahn, a world respected solid state researcher states that symmetric cells have zero average voltage and are "useless from a practical point of view," although they can provide other significant information.

119. Former employees of QuantumScape similarly noted that the Li/Li cell was merely academic and did not show dendrite resistance. He stated, "In a normal cell, they have a lithium metal-plated anode, and then they have a cathode—but this doesn't have that. With this lithium-lithium symmetric cell testing, they're putting lithium on both sides and passing electricity back and forth. This is giving you the max capability of the separator, the max speed at which it can cycle without destroying the separator. That actually really doesn't tell you too much about the battery. It's telling you the max capability if there is no other restriction, so you just put lithium on both sides and see how fast you can pass it from one side to the other. Of course, when you put it into an actual battery, you're going to have a cathode on the other side and not just a lithium-plated side, or else the battery is not going to hold a real charge. That's what passes electricity back and forth. By doing that, you're not going to get that type of speed. It's like when you do a Wi-Fi speed test to see the max speed. You're never actually going to get that if you start downloading, because it's just showing you the fastest signal step if you tried."

120. A second former employee echoed these statements, stating: "If you want to say you have solved the dendrites problem, you have to show you solved the problem in a real product, in a multiple-layer battery. It's just a single layer. A prototype that has two anode layers, that's not enough. That's academic. That still stays at a university, it's not industry." He continued, "A lithium lithium symmetric cell is not a real battery cell… I don't believe that they have solved dendrite formation in a real battery."

121. Unbeknownst to investors, Defendants also used a "pulse test" to skew the results in QuantumScape's favor. The report discloses that "[o]ne of the world's leading solid-state battery researchers" was able to see that the chart clearly shows a "pulse test" which is described as deceptive and a trick used by QuantumScape to achieve its desired results. This is because "[d]endrites form as lithium is subjected to a continuous current over a period of time and of course batteries must operate for continuous periods to do useful things like power a car. The graph that shows Quantum[S]cape's purported dendrite breakthrough cheated by 'pulsing' the current applying current, stopping, applying current, stopping again which is not how batteries operate in the real world."

122. An expert cited by Scorpion Capital indicated that pulse tests are "cheating" because "lithium has a low melting temperature, and pulsing creates electrical resistance that heats the lithium, which causes dendrites to smooth out in the rest period between pulses which 'is not how batteries are operated in the field.' The expert further noted the lack of a voltage spike in the pulsing data as another red flag in the chart, and wondered what 'other tricks they played during the resting period.'" "Anyone can 'prevent' dendrites with pulsing but it's not how batteries operate in the real world."

123. A former research and development employee indicated to Scorpion Capital that "This test is a pulse test. You can tell that because the bottom green axis—they've got two normalized axes on the bottom. Every length of that pulse is depositing a very finite amount of lithium, and then they do a little bit of lithium plating, and then they increase the current. This is not a good way to judge that you've killed the dendrite problem [laughs] for the simple reason that if you have this in a large vehicle-size battery, a true commercial-size battery, and you really did want to charge the entire battery, not just a little bit of charging, which are these tiny steps, you'd want to charge the whole battery at a current. That's how you would prove this isn't a dendrite."

124. A second former research and development employee indicated that: "That pulse step is so short that it's only taking a few minutes, and it's only depositing a fraction of a micron of lithium. You would have to hold that pulse for the full 15 minutes to prove that it didn't have a short, and you'd have to do that on the device again and again to find out when Volkswagen should void the warranty. That's the real dendrite test. The length of these pulses is still minutes; it's too short. The goal for charging a vehicle at the mall before you drive home would be the whole thing charged in 15 minutes.

To really judge, these pulses should be way, way longer, orders of magnitude longer. Maybe this impresses people by saying that you've killed the dendrite problem, but the real proof is doing the test hundreds and hundreds of thousands of times. This is a tiny bit of current on cells for a little bit of time."

125. The Scorpion Capital Report also discloses that while Defendants represented that its "[s]olid-state separator resists dendrites even at very high current density," this was only achievable because Defendants used a "pulse test" and used longer rest periods between pulses. By affirmatively stating that QuantumScape's solid-state separator resists dendrites while at the same time omitting the fact that this is only achievable under very specific test results, Defendants misled investors. The Scorpion Capital Report disclosed that "pulse tests" are often used to prevent dendrite formation in labs. As stated in a 2012 research paper titled "*Suppression of Dendrite Formation via Pulse Charging in Rechargeable Lithium Metal Batteries*" found that its "model confirms that dendrite formation propensity increases with the applied electrode overpotential, and it demonstrates that application of the electrode overpotential in time-dependent pulses leads to dramatic suppression of dendrite formation while reducing the accumulated electrode on-time by as much as 96%."[6]

126. The Scorpion Capital report notes that despite Singh stating that "the data we presented today makes clear that the QuantumScape technology can address the fundamental issues . . . [w]e can operate at 30 degrees Celsius, close to room temperature," Defendants claim that QuantumScape's battery resists dendrites by showing data from a test ran at 45 degrees Celsius or 113 degrees Fahrenheit while omitting the size of the cell. Defendants also disclosed that they ran the dendrite test at 45 degrees Celsius but omitted the fact that these are not real-world conditions, and had the test been run at room temperature, dendrites would have formed. At 45 degrees Celsius, the lithium is a significant percentage of the way to its melting point, which makes it harder for dendrites to form in the first place. By using

[6] Matthew Z. Mayers, Jakub W. Kaminski, and Thomas F. Miller, III, Suppression of Dendrite Formation via Pulse Charging in Rechargeable Lithium Metal Batteries, 116 *J. Phys. Chem. Vol.* 26214 (2012), https://pubs.acs.org/doi/abs/10.1021/jp309321w.; *See also* Hu Chen, Xu Ye JinYi, and Shui Jianglan, Performance improvement of lithium-ion battery by pulse current, 46 J. Phys. Chem. Vol. 46 208 (2020), https://doi.org/10.1016/j.jechem.2019.11.007.

an artificially high temperature, Defendants were able to mislead investors as to the ability of its battery to resist dendrite formation.

127. A former research and development employee of QuantumScape told Scorpion Capital: "What they're testing is a single-layer lithium anode battery at 45C, and that's important because 45C is not room temperature. As you can guess, there are some benefits to going higher in the temperature. The battery performs more favorably. It also can discharge and recharge more favorably at 45C versus room temperature…what is going to get the battery to that temperature? Are they putting a heater or something in the car in order to provide that?"

128. Similarly, a solid-state expert indicated that "Lithium's melting point is like 180°C, but if you're a material scientist, you think of everything in terms of Kelvin and what fraction of the melting temperature you're at in Kelvin. So, by that temperature, you're a pretty high fraction of the melting point. If you're at the melting point, you can't make a dendrite. You also can use NMC as a cathode material, so you can't really run at 180°C. If they chose 30°C, like the other slides, it would be harder to achieve this result."

129. Additionally, while Defendants disclose the size of the cells used throughout the presentation, they omit the size of the cell used in the dendrite test. According to a former QuantumScape employee interviewed by Scorpion Capital, "Some things died at the coin cell stage. I'm sure you're familiar with this: as you increase the area, it increases the likelihood of failure. If you scale up to a pouch cell level, your barriers get exacerbated because there's just more area that could be potential failures. And a lot of the failures for these types of batteries are dendrites. It just takes one dendrite to fail a cell. So, if you have more area, you have more probability of failure." Therefore, the fact that QuantumScape is claiming that its battery is capable of resisting dendrites but omitting the size of the cell used is materially misleading. An expert interviewed by Scorpion Capital commented: "The other question I have is, they call it a single layer, but is it the same area single layer? Why aren't they showing you what kind of a cell it was done in? Like what's the area of this cell that they showed, and how does that compare to the area to their commercial area? The fact that they did it in this very strange format that's not industry-accepted is weird."

130. Similarly, a former research and development employee at QuantumScape noted to Scorpion Capital: "30x30cm cells vs. 70x85mm have more rigidity and the ability to not produce dendrites just because they're small. The bigger one—my assumption is, there are clearly certain tests that they found more favorable on this smaller one and they decided to choose the better-looking data for the presentation. 30x30 has less surface area, less interaction, less chance of lithium plating—there are a lot of different things in the science. It's better performing for certain ceramic reasons. I would actually agree 100% [that they're cherry-picking different prototypes for different tests], and the reason why is scalability. There are some inherent benefits to having a smaller wafer."

131. Defendants also omit the fact that the test was ran for a single cell, rather than revealing data for a group of cells. As indicated by the Scorpion Capital Report, QuantumScape is using a "gimmick" by using a dendrites sample by showing a one-time test, rather than showing a large sample of cells. An EV needs hundreds of thousand battery layers and at most 1% can have a dendrite. A solid-state materials expert interviewed by Scorpion Capital stated "Anyone in this area knows this is just a little R&D test. Their conclusion that 'material entitlement exists for full charge in less than 5 minutes.' I don't know that I buy that. You've got a 25C rate there, and they're saying; we did this, and dendrites didn't form. Yeah but, you only did that test that one time. And normally, what happens is dendrites grow a little bit on every cycle, and you maybe even reverse them a little bit as you discharge, and then you grow a little more as you charge, but generally, it doesn't go all the way back. So, you do this a number of times, and then failure occurs.'" A second expert similarly told Scorpion Capital, "One of the reasons why is because you have an aging effect. If they just said, we can do 100 mA/cm2, and we're just going to 100mA /cm2 50 times and if they charged, even if they stripped lower, but let's say they charged at 100mA/cm2, then they discharged at a low current and then they did that again and again and again, that is one thing that would convince me, like, okay, this is real, and it's really impressive. The way they've shown it, it's kind of a gimmick."

132. A former research and development employee also cast doubt on the test, telling Scorpion Capital, "Is this a one-time thing, a ten-times thing, or an every time thing? That's unclear. So, you're not sure how many times they had to test until they could get that type of result to put out there. Who knows if the battery can really do that every single time. You would want to see a sample size -this

comes back to the fact that you need 200,000 of these to power a car. If you have 1 or 2 or maybe 10 cells that are able to perform this great, that's great; then you should show that data. It shows that your science checks out. If they wanted to make it convincing, they would show 100,000 of these cells that are put in one car, as well as the success rate of all those batteries because in a car, you would really not want more than 1% of the single layers to have a dendrite. If you showed 10 single layer cells and 10 out of 10 are showing no dendrites, that's great…but 10 cells doesn't really power anything." Therefore, by claiming that QuantumScape's battery is ready for consumption because its battery prevents dendrites, but omitting the relevant test factors, Defendants misled investors.

133. Had QuantumScape actually developed a battery that prevents dendrites, the above manipulated tests described above would not be necessary. Therefore, by claiming that the battery "prevents dendrites" and that the "science risk" was behind them, investors were misled to believe that due QuantumScape's battery was "better than you can achieve with conventional lithium-ion batteries" and "ready for commercial deployment" when in fact, QuantumScape still had not solved the dendrite issue in even its single layer battery cell.

134. **Performance at Low Temperatures**. Operating at very low temperatures is mandatory for automaker acceptance, given cold climates where vast swaths of drivers live. However, QuantumScape again uses a manipulated test to achieve its goal. The Scorpion Capital Report revealed, "[QuantumScape] once again resorts to tricks and gimmicks, some buried in the fine print, which indicates that its 3x3cm prototype was actually charged at a sizzling 30 ºC (86 ºF) and only then discharged at a low temperature. Obviously in the real world, cars in cold climates don't have the luxury of being charged in garages or parking lots where the temperature is kept at a sweltering 86 ºF. It appears to us that QS concocted a rather unusual test in order to create a favorable slide headline. Lithium ions move in one direction (cathode to anode) while being charged and then in the opposite direction when discharged. QS seems to admit that it in cold temperatures, it can't move lithium through its solid state separator in both directions –the very definition of a working battery."

135. **Fast Charging to 80% in under 15 minutes**. Defendants also mislead investors into believing that QuantumScape's charging capabilities vastly outweigh those of lithium-ion. Scorpion Capital revealed that QuantumScape fails to disclose that it is comparing apples to oranges. For example,

QuantumScape compares their face charge "capabilities" to current charge times of vehicles already on the market. QuantumScape fails to disclose how long it would take to charge a working battery pack. QuantumScape's cell consists of 200mAh, this compares to 3,400 mAh in a standard AA-size lithium-ion battery, and 3,687 mAh in an iPhone 12 Max Pro. To fuel an EV on the market, QuantumScape will admittedly need hundreds of thousands of its cells. Therefore, representing that QuantumScape's single-layer pouch cell was better than a full-size working EV battery was materially false and misleading.

136. Further, the slide fails to state that fast charging quickly destroys the cell and hides how many times the QuantumScape cell can be charged at this rate. As stated by a former QuantumScape employee to Scorpion Capital, "If you're charging and discharging fast, the general knowledge is that you're going to degrade faster. The fact that there's no charge rate versus the cycling data at that particular charge rate-so they can say this is how fast it charges, and then they're showing cycling data from a cell that's at a slower charge rate. You have to connect those two. It's easy to stick those in separate slides."

137. Similarly, a solid-state expert stated to Scorpion Capital, "On slide 17, you get that fast-charging graph there, and they're showing less than a 15-minute charge, and that's good, but what's not clear at all in this is you can do that one time. The thing is, you can probably just go in the lab and put together current, any old lithium-ion configuration and force it to charge that fast, and it would not fail immediately. It's like, yeah; you can do this once, can you do it every time you charge a vehicle during its 200,000 life? I don't know the answer based on this data. If they had it, it would be here…. How many times can you do that before something bad happens? If it's thousands of times, fantastic. But is it really just like a couple of times?"

138. **Long battery life to 1,000+ charge cycles**. The Scorpion Capital Report also revealed that Defendants' representations that QuantumScape's battery can be cycled 1000+ times, and still exhibit 80% energy retention an equivalent to 300,000 miles driven were materially false and misleading. Defendant Singh stated in relevant part: "There is zero excess lithium in these cells. These are thick cathodes, over three milliamps symmetry squared, and this is the commercial area of the cells. So these are all real world conditions. In fact they're aggressive real world conditions because of the

charge rates and discharge rates. They are not sort of a compromised test conditions. And you see the battery lasts over 800 cycles, with well over 80 percent of capacity retained."

139. As revealed by Scorpion Capital, QuantumScape misled investors by representing that its battery exceeds the "commercial target" for cycle life buy in reality, they are not using real world batteries, but a tiny cell "[QuantumScape] once again hides the actual capacity the battery is charged to in its simulation. . . A solid state expert used the fine print in QuantumScape's slides to calculate that the actual capacity of its prototype is about 200mAh or about 1/3 the capacity of a typical hearing aid battery. In other words, QuantumScape claims to exceed the 'commercial target' for cycle life for an electric vehicle battery but by cycling a battery with a microscopic capacity."

140. Further, according to a solid-state battery expert cited by Scorpion Capital, this reporting method raises "[d]efinite red flag[s]" because it does not conform to industry standards or report "how much capacity is left[.]" The expert noted that the "Department of Energy doesn't even allow cycle life data this nebulous" because companies are "not allowed to use percentages." When the expert used QuantumScape's data to calculate the actual capacity of the Company's prototype, it revealed that it was "about 1/3 the capacity of a typical hearing aid battery[,]" meaning "QuantumScape claim[ed] to exceed the 'commercial target' for cycle life for an electric vehicle battery – but by cycling a battery with a microscopic capacity."

141. According to Scorpion Capital, "Experts indicate it's a common form of cheating when making battery claims, as at low energy loadings a cell can last forever. Cycle life is one of the most important items reported for any battery. The more often a battery is charged and discharged, the shorter its lifespan, as each battery has a certain number of charge/discharge cycles in its useful life. "Depth of discharge" (DoD)is the percentage of a battery's energy that has been used up before recharging, e.g., 80% DoD on a 10kWh battery is 8kWh. Here's the rub: a battery may last 1,000 cycles at a low 10% DoD, but only 200 cycles at 80% DoD. Hence, battery performance data is meaningless unless BOTH 1) the total, actual level of charge is reported vs. just a percentage, as well as 2) the Depth of Discharge used for the cycle life test. We see neither in the QS data."

142. **Battery life in low temperatures.** In addition to claiming that its battery performs better than Li-ion at low temperatures, QuantumScape implies it has long cycle life in cold conditions. Meeting

both automaker criteria are essential for commercial viability. The Scorpion Capital Report provided additional evidence contradicting QuantumScape's claims that its products had long life cycles at low temperatures. According to a solid-state materials researcher quoted in the Scorpion Capital Report, the chart was misleading as it purported to show that the batteries exhibited more than 100% of their discharge energy. According to this expert, this would only be possible if the batteries' respective discharge energies were not measured against their actual discharge capabilities, but some arbitrarily lower figure. The expert found the chart was also misleading because any statistical variation that might have been present was obscured by the scale of the Y-axis, saying "[i]f you plot the data like this, that means they don't want us to see the statistical variations."

143. **Aggressive automotive power profiles.** QuantumScape also claims its cell has an "aggressive automotive power profile." The Scorpion Capital Report revealed that in reality QuantumScape's test battery is not better than "today's best lithium-ion cells" and that this data again is manipulated by using a "pulse test." "If one zooms in to the 'track cycle' data, it appears to use short pulses of merely 5-10 seconds each, each one presumably a lap around a simulated racetrack. A solid-state researcher slammed the data as non-standard and 'a huge problem' as batteries need to deliver constant current for long periods vs. 5-10 second bursts." According to the solid-state battery researcher, "The other thing we can see is current density of -20 while on the positive side it's only a 7 or 8. It's very asymmetric. So, it means plating and depositing. I don't understand the reason why this profile is demonstrated. I don't even know what positive and negative means. But basically, you're depositing and stripping mass. I don't know why this cycling performance is considered cumulative track cycles in terms of laps because, again, nobody in our field is using this type of protocol to show data because when we show cycle data, it's usually 80% depth of charge under constant current conditions and how long it can cycle and we say 20% depth of charge."

144. According to a leading solid-state battery researcher cited by Scorpion Capital, "The silicon-carbon cell performance in slide 19, I think again you see the discharge energy is in percentage, which really, really worries me because lithium-ion cells do not look like that at all. If you look at some of the Sila Nanotechnology data, 1000 cycles is very flat. They always pick a bad cell to compare their cell to. The gray reference is not state of the art carbon anode."

145. Accordingly, Defendants misled investors by representing that the "science risk" was behind them and that QuantumScape's battery was better than current lithium-ion batteries when in reality, QuantumScape used a number of misleading data points to mislead investors into believing that their technology was more advanced than it was in reality.

146. When the Scorpion Capital Report was published on April 15, 2021 and the true nature of QuantumScape's battery technology was revealed to the market, QuantumScape's stock price plummeted from a close of $40.85 on April 14, 2021, to a close of $35.85 on April 15, 2021, a decline of 12.24%, on unusually heavy trading volume of 59.0 million shares.

G. QuantumScape's Claims about its Solid State were Materially False and Misleading

147. Defendants represented to investors that: (i) QuantumScape's technology was more developed and had better capabilities than it did in reality, (ii) that the "science risk" of QuantumScape's technology was behind them, (iii) that its battery was "ready for commercial deployment" and all that was needed was to "scale up production and make multilayer versions of these cells," and (iv) that its battery exceeded what was capable in lithium-ion batteries. In reality, QuantumScape used a number of test compromises to manipulate the data to show QuantumScape's technology was more developed and had better capabilities than it did, ready for commercial development, and capable of performing as well as lithium-ion batteries.

148. The *Seeking Alpha* article and Scorpion Capital reports cited above revealed important questions about QuantumScape's testing methods and claims. These disclosures led the market to view Defendants' claims with skepticism. Investors were right to do so. Many of the claims that Defendants made about QuantumScape's technology were materially misleading.

149. For example, while Defendants represent that QuantumScape's technology has better energy density than lithium-ion as it contains zero excess lithium on the anode ("Zero Lithium Anode-free Architecture" (Slide 10), Defendants omit the fact that while QuantumScape's battery is manufactured without an anode, excess lithium comes from the cathode and stays at the anode after the first charge. This reduces cathode utilization and cell energy density. As one of the key compromises

that companies use to manipulate data is excess lithium, this results in the same exact compromise Defendants warn about.

150. Similarly, Defendants statements about QuantumScape's capability of 1,000 Wh/L (Slide 11) were materially false. Based on QuantumScape's cathode discharge capacity of 134 mAh/gram at 0 degrees Celsius (Slide 21), QuantumScape's cathode discharge capacity results in approximately 148 mAh/gram at 20 degrees Celsius, compared to standard lithium battery cells of 180 mAh/gram at room temperature. This results in QuantumScape only using 148/180, or approximately 82% of capacity loss in its testing. With 18% (or more) capacity loss at the cathode QuantumScape has no basis to allege 1,000 Wh/L for their cells.

151. Additionally, Defendants' statements that QuantumScape's battery will be cheaper than lithium-ion because it does not include traditional anode material is materially false and misleading. Defendants omit a number of factors that will actually make QuantumScape's battery more expensive. This includes, the high cost solid electrolyte material, the high processing cost to make the solid electrolyte into a separator sheet, the high cost of creating a clean current collector that will succeed in plating lithium uniformly on first charge, the cost of sealing around each positive electrode to prevent the liquid gel electrolyte from accessing the negative electrode, the high cost and complexity of managing the large volume changes between the charged and discharged states, and the cost to stack thousands of small cells to form a battery which results in 1,000 times the cost.

152. Defendants also misrepresented the safety of its battery, stating that its solid-state separator is non-flammable and non-combustible. However, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite. Further, its "solid-state" separator actually contains a liquid/gel as the catholyte. If that liquid/gel gets into contact with metallic lithium, the risk for volatile reactions is considerable. Additionally, QuantumScape uses the same thermally unstable cathode used in lithium-ion cells. However, while conventional batteries use mechanically strong separators (high puncture strength) as these have been found to prevent internal short circuits, Defendants omit the relevant data as to the mechanical properties of the QuantumScape separators.

153. Safety is a system-level issue. The inorganic separator helps and would provide better safety ***if*** the rest of the cell chemistry and architecture remained the same. However, that is not the case here. In reality, replacing graphite-Si with lithium dramatically increases the volatility of the battery.

154. Defendants also misrepresent the current state of lithium-ion technology in order to make it appear that QuantumScape's technology is vastly superior to lithium-ion. For example, QuantumScape represents that lithium-ion batteries can only charge 80% in about 40 mins (Slide 17). However, many lithium-ion cell designs will achieve 80% capacity in less than 40 minutes. Enevate's NCM/C-Si cell will deliver 80% capacity in less than 6 minutes. The National Academy of Sciences published information showing that lithium-ion batteries were capable of 80% charge in 15 minutes in 2018.[7] In another 2018 article published by Electrochemistry Communication, it was again shown that lithium-ion was able to achieve 80% capacity at a 4C (15 minute) charge rate.[8]

155. In addition to charging capabilities, Defendants also misrepresented the performance capabilities of lithium-ion cells in order to make QuantumScape's technology appear superior. For example, Defendants represent on Slide 21 of its December 8, 2020, that its technology is capable of 135 mAh/g at 0°C, while depicting lithium at around 60 mAh/g at -25°C in order to make it look like QuantumScape's technology is superior. In reality, 135 mAh/g is vastly inferior to that of many lithium-ion cells. For example, Grepow's battery is capable of 162 mAh/g at -10°C. Innovative Battery Technology also shows lithium-ion cells delivering 96% of room temperature C/5 capacity at 0°C, translating to 173 mAh/g.[9]

Xiao-Guang Yang, Guangsheng Zhang, Shanhai Ge, and Chao-Yang Wang, Fast Charing of Lithium-ion batteries at all temperatures, 115 Proc. of the Nat'l Acad. of Sci. 7266 (2018), https://www.pnas.org/content/115/28/7266.

[8] Chengyu Mao, Rose E. Ruther, Jianlin Li, Zhijia Du, Ilias Belharouak, Identifying the limiting electrode in lithium-ion batteries for extreme fast charging, 97 Electrochemistry Comm. 37 (2018), https://www.sciencedirect.com/journal/electrochemistry-communications/vol/97/suppl/C.

[9] Innovative Battery Technology, Typical Lithium Ion Technical Data (June 21, 2021, 12:30 PM), http://www.ibt-power.com/Battery_packs/Li_Ion/Lithium_ion_tech.html.

156. Defendants' allegations that QuantumScape's battery "resists dendrites" are also materially false and misleading. Defendants claim to have solved the dendrite problem (Slide 18), while omitting that the results were unreliable because the tests were run using compromised conditions, including at 45°C and use a miniscule Li / Li symmetric cell. As dendrites get softer and less problematic at high temperatures, and are easier to control in small batteries. As stated by Defendants themselves, companies often compromise heat to show better results. That is exactly what they did here.

157. Defendants' statements about its cycle capabilities were also materially false and misleading as Defendants again used compromises to manipulate the test. For example, Defendants cycle less than the full 180 mAh/g capacity of the cathode and fail to introduce an open circuit hold pause before discharging to look for soft (dendritic) shorts. By failing to do so, Defendants artificially reduce dendrites in the tests. Defendants also fail to cycle the cells to failure, therefore, there is no way to determine whether the cells fail due to dendrite formations, rather than gradually fading due to lithium consumption, dry-out, or impedance rise. Finally, Defendants do not provide any data on calendar life of its cells. Cell degradation, like capacity loss, impedance growth, and gassing, all increase with temperature, therefore, QuantumScape's tests that were ran at 45°C would accelerate deterioration of the cathode and are again unreliable.

158. Defendants omitted the fact that QuantumScape's December 8, 2020, data results were run under compromised conditions, including the use of elevated temperatures, small irrelevant cells, excess lithium, and pulse tests, resulting in artificially beneficial results. In fact, Defendants affirmatively represented that the results were shown "under uncompromised testing conditions" and that the tests ran "are not sort of a compromised test conditions." By failing to disclose the fact that many of the tests presented actually used the same compromised conditions Defendants warned of, Defendants misled investors.

159. Accordingly, QuantumScape overstated its battery's capabilities, and still had a number of science issues to resolve including dendrite formation, safety, battery range and cycle life, energy density, and low temperature operation. Further lithium-batteries performed just as well, if not better than QuantumScape's solid-state battery.

VI. MATERIALLY FALSE AND MISLEADING CLASS PERIOD STATEMENTS[10]

160. Throughout the Class Period, Defendants issued a series of material misstatements and omitted material facts in the company's public filings, press releases, and other documents concerning QuantumScape's batter technology.

161. These material misstatements and omissions gave the false impression to investors that: (i) QuantumScape's technology was more developed and had better capabilities than it did in reality, (ii) that the "science risk" of QuantumScape's technology was behind them, (iii) that its battery was "ready for commercial deployment" and all that was needed was to "scale up production and make multilayer versions of these cells", and (iv) that its battery exceeded what was capable in lithium-ion batteries with respect to charging speed, cycle life, cost, energy density, and safety. As would later be disclosed, Defendants used a number of "compromises" and manipulated data to make QuantumScape's technology appear more advanced and relevant than was true.

November 27, 2020 – CNBC Interview & Press Release

162. The Class Period commences on November 27, 2020, when Defendant Singh appeared for an interview on CNBC's "Squawk on the Street" to discuss QuantumScape going public and its battery technology:

> Jagdeep Singh: This is the beginning of a massive transformation in one of the largest industries on the planet. This is going to be a multidecade long transition. There is a huge opportunity to create, we believe, hundreds of billions of dollars of revenue over that time. The time to revenue does not reflect what is traditionally thought of as market risk or technology risk. We have technology that works. Our OEM automotive customers have tested it and we have the support of the largest car company in the world, which is Volkswagen, which is our biggest investor. ***The time between now and first revenue is really spent doing two things. One is ramping up production. Batteries take time to build and scale up. And two is to do the final automotive qualification process, which also takes some time***.
>
> David Faber: It is one thing for things to work in a laboratory and another thing for them to work at scale. You're confident that your battery, your solid-state battery, that of course will be able to be charged more quickly and obviously give a longer life that it will be able to work at scale and you'll be able to produce it at scale?
>
> Jagdeep Singh: ***Well, what we are confident about is that the fundamental science risk***

[10] The alleged materially false and misleading statements and omissions are bolded and italicized. Non-bolded statements are included for context.

> ***is behind us*** because the battery has been tested at automotive power by the automotive OEMs themselves. And I think that relative to scaling the production, we obviously understand out technology well. We know the process that involved making it. But keep in mind that the production partnership is with Volkswagen. We have a joint venture with VW. We are going to jointly make these batteries at scale. Obviously, VW knows how to make very high volume, very high-quality product in the marketplace. So, yes, I think we are pretty comfortable that we are able to scale this. Our technology works.

163. On November 27, 2020, QuantumScape and Kensington also issued a joint press release, as an Exhibit to a Form 8-K filed with the SEC, characterizing QuantumScape as "a leader in the development of next generation solid-state lithium-metal batteries for use in electric vehicles," further stating as follows:

> Since the company was founded in 2010, QuantumScape has been exclusively focused on developing solid-state batteries and designing a scalable manufacturing process to commercialize its battery technology for the automotive industry. Through its elegant "anode-less" design, ***QuantumScape's solid-state lithium-metal batteries are designed to be safer, and to deliver greater range, faster charge times and improved cycle life, than today's conventional lithium-ion battery technology.***
>
> "Today marks a big step in the evolution of our company," commented Jagdeep Singh, Founder and Chief Executive Officer of QuantumScape. "This transaction allows QuantumScape to fund development and commercialization of our OEM-validate battery technology as we look forward to playing our part in the electrification of the automotive powertrain, helping transform one of the world's largest industries andfostering a cleaner future for all."

164. The above interview was materially false and misleading. Singh represented in his interview that the "fundamental science risk" was resolved and, as a result, QuantumScape was ready to "ramp[] up production" and move on to the "final automotive qualification process." This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section C, E-G, supra.

165. The "fundamental science risk" for solid state batteries at this point related to the solid-state separator and its ability to prevent dendrite formation, energy density under real-world conditions, and recharge capacity. QuantumScape had not overcome these obstacles. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

166. Consequently, by representing that it had resolved the "fundamental science risk" associated with solid state batteries and claiming it was ready to "ramp[] up production," Singh materially overstated the development of QuantumScape's solid state batteries.

167. The Press Release was also materially false and misleading as it gave the impression that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries. In reality, QuantumScape's battery is not safer than today's lithium-ion, and QuantumScape was only able to achieve greater range, faster charge times and improved cycle life using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra. Consequently, Defendants materially misled investors to believe that its battery performed as well as lithium-ion batteries currently on the market.

December 8, 2020 – The Solid-State Battery Showcase

168. A week after going public, on December 3, 2020, QuantumScape announced that they would be releasing performance data for their solid-state battery on December 8, 2020.

169. On December 8, 2020, Defendants held their showcase, filing a press release and slide deck with the SEC, and a live presentation on "YouTube." The slide deck is attached hereto as Exhibit D and is incorporated by reference.

170. The Battery Showcase included a panelist of battery scientists and QuantumScape board members. The presentation included a number of misleading statements and slides to support its claims that: (i) QuantumScape's technology was more developed and had better capabilities than it did in reality, (ii) that the "science risk" of QuantumScape's technology was behind them, (iii) that its battery was "ready for commercial deployment" and all that was needed was to "scale up production and make multilayer versions of these cells", and (iv) that its battery exceeded what was capable in lithium-ion batteries.

Slides 9-11 – Energy Density

171. During the December 8, 2020 presentation, Defendants published Slides 9-11 to show that QuantumScape's energy density is superior to today's lithium-ion.

172. Slide 9 showed lithium-metal compared to lithium-ion batteries:

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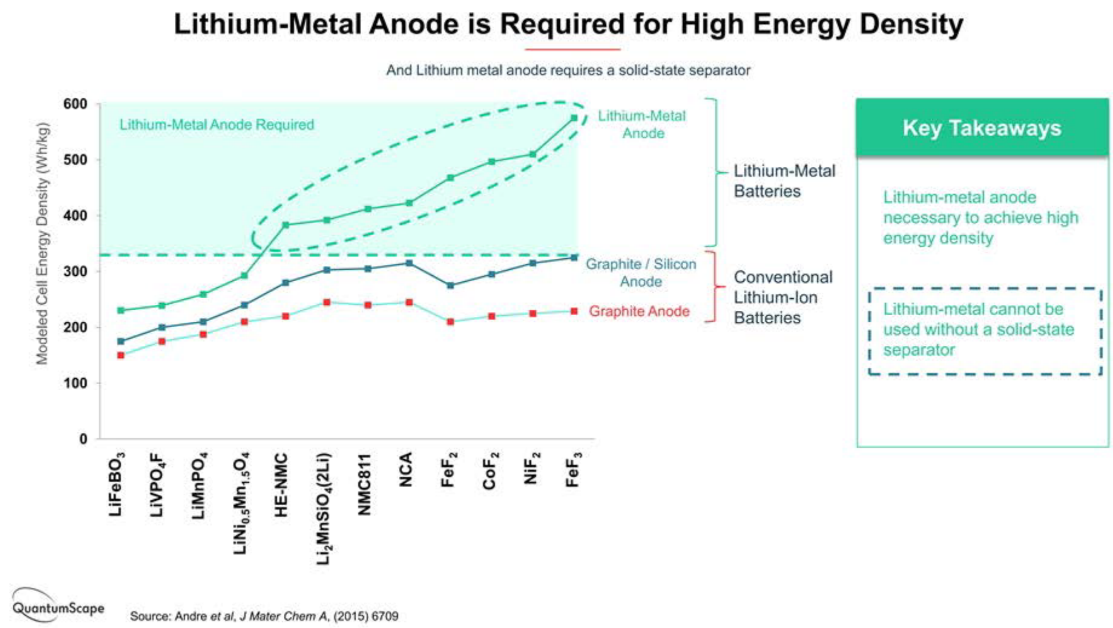

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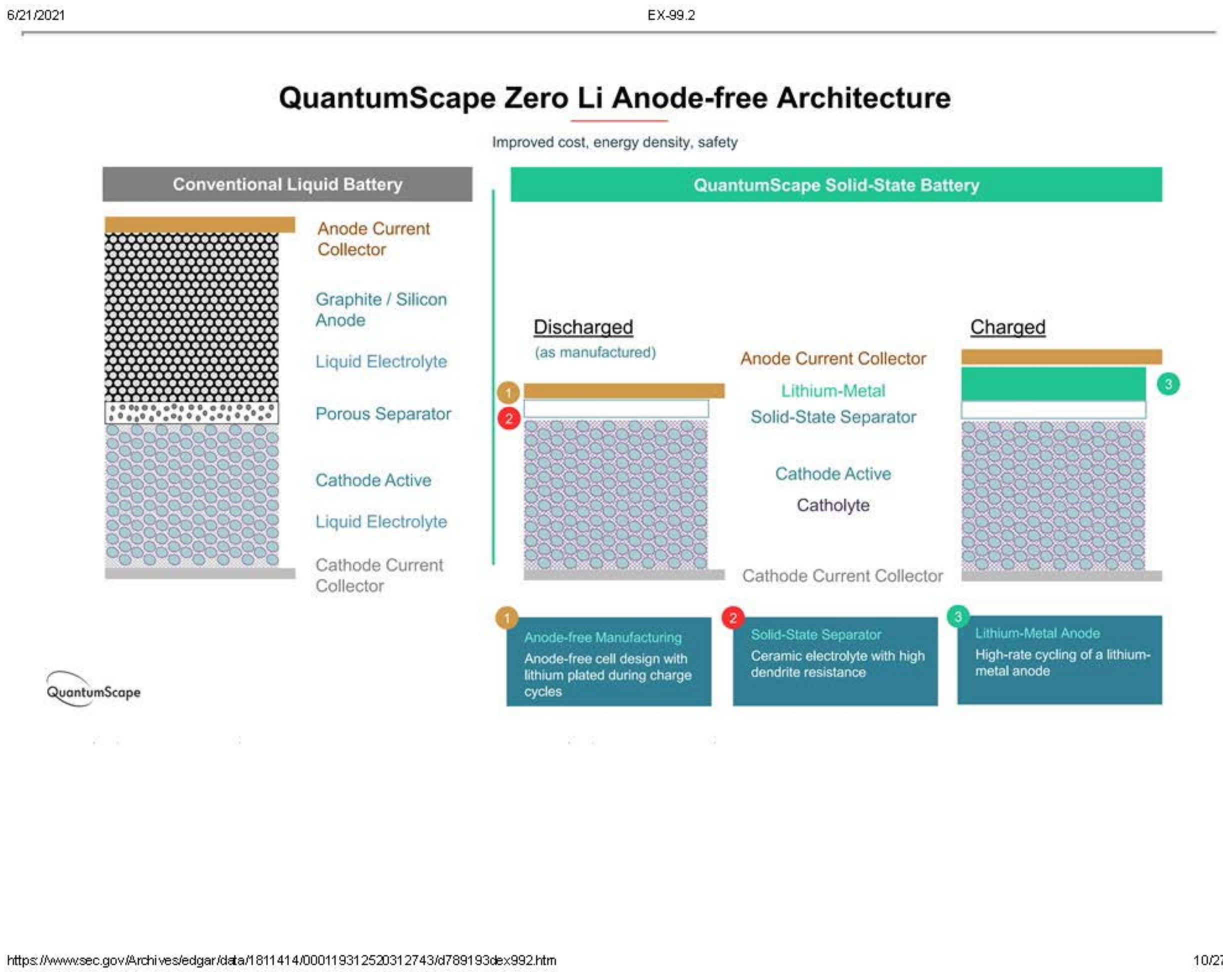
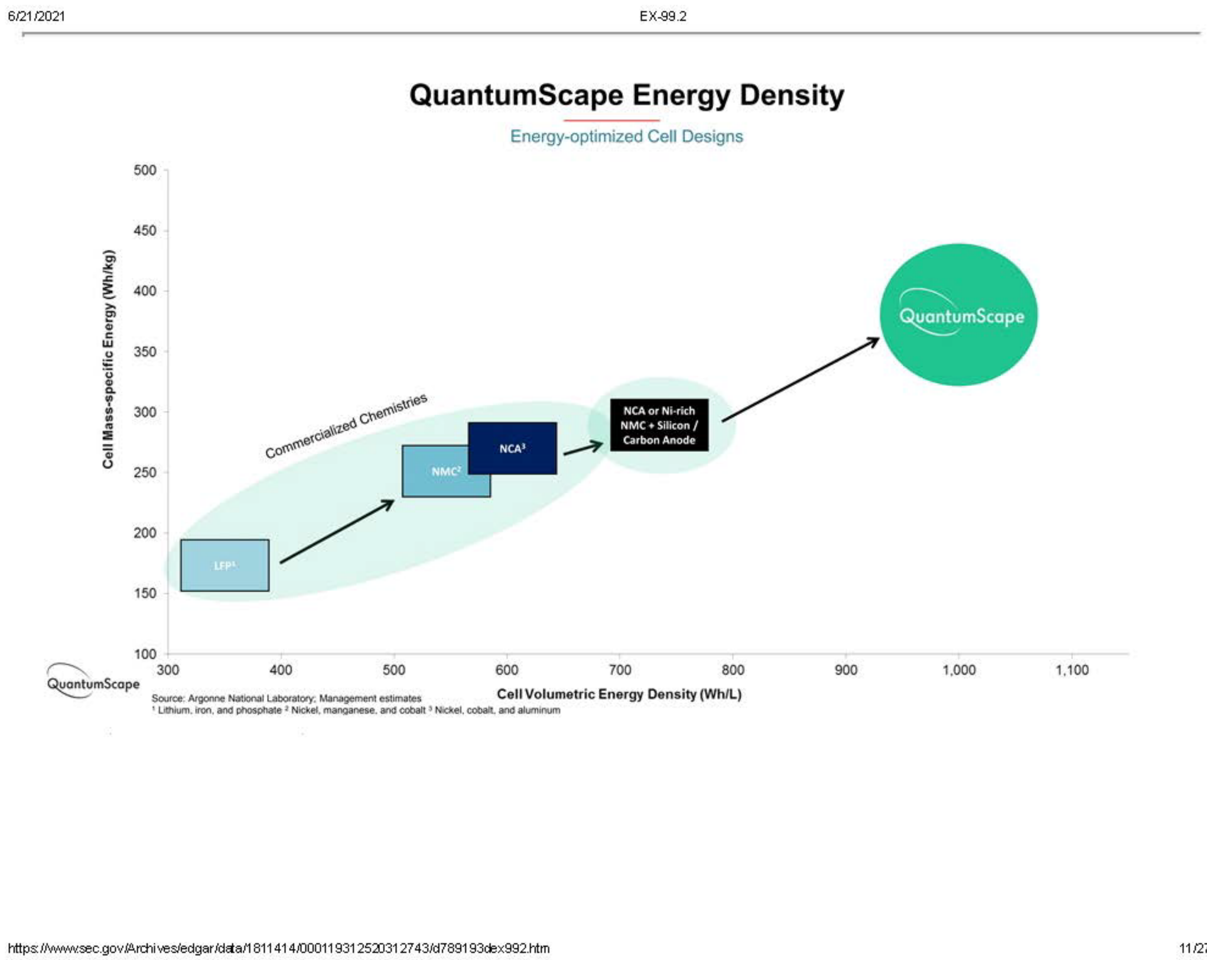
173. Slide 10 similarly compared the architecture of a lithium-ion battery to QuantumScape's design, stating that its design provides "[i]mproved cost, energy density, safety":



174. Slide 11 portrayed QuantumScape's cell volumetric Energy density as over 1,000 Wh/L compared to lithium-ion at less than 700 Wh/L:



175. The above slides were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was cheaper, had better energy density, and was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

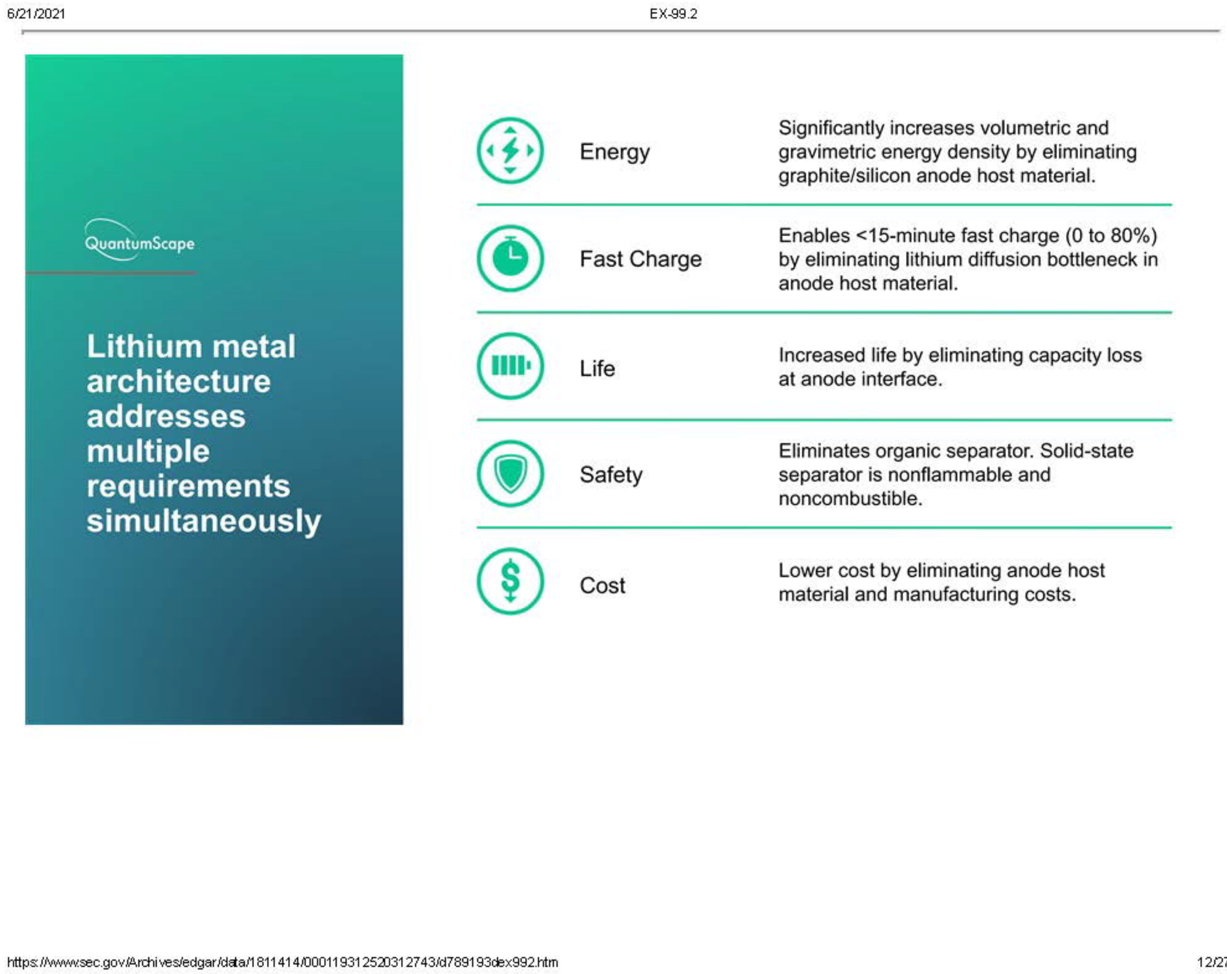
176. The above slide also overstated QuantumScape's energy density capabilities as 1,000 Wh/L, and omitted the fact that after the first charge, some of the lithium stays on the anode resulting in excess lithium, reducing the cathode utilization and overall cell energy density. See Section V. G, supra.

Additionally, Defendants also misrepresent that its technology is safer than today's lithium-ion. However, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite. See Section V. G, supra. Similarly, the cost of QuantumScape's technology would be significantly higher than represented as Defendants omitted a number of costs related to its battery. See Section V. G, supra.

177. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

<u>Slide 12 – Energy, Fast Charge, Life, Safety, and Cost</u>

178. The presentation also included the following slide, entitled "Lithium metal architecture addresses multiple requirements simultaneously," that represented that QuantumScape's "[l]ithium metal architecture addresses multiple requirements simultaneously, including energy, fast charge, life, safety, and cost":



179. The above statements about Energy, Fast Charge, Life, Safety, and Cost were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was more advanced, cheaper, had better energy density, and was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

180. The above slide stated that QuantumScape's energy density was higher because of its lack of anode material, but omitted the fact that after the first charge, some of the lithium stays on the anode resulting in excess lithium, reducing the cathode utilization and overall cell energy density. See

Section V. G, supra. Additionally, Defendants also misrepresent that its technology is safer than today's lithium-ion. However, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite. See Section V. G, supra. Similarly, despite QuantumScape's representation that it would have lower costs than lithium-ion, the cost of QuantumScape's technology would be significantly higher than represented as Defendants omitted a number of costs related to its battery. See Section V. G, supra.

181. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

182. The above statements about Energy, Fast Charge, Life, Safety, and Cost were also misleading because it portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

183. The above statements represented that its battery was able to fast charge while preventing dendrite formation under real world conditions. QuantumScape had not overcome this obstacle. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. E-G, supra.

184. Consequently, by representing that QuantumScape could "fast-charge" to 80% in 15 minutes, Defendants materially overstated the development of QuantumScape's solid state batteries.

December 8, 2020, Presentation Video

185. Next, Defendants played a video during the presentation that discussed four challenges of creating a solid-state battery including: (i) rapid charge without the formation of dendrites, (ii) life cycle of the battery, (iii) temperature operation, and (iv) the need to minimize the excess lithium on a battery. The video indicated that QuantumScape batteries have overcome these obstacles, stating: (i) "QuantumScape batteries have a ceramic separator that has been shown to withstand the current density required for a 15-minute fast charge," (ii) QuantumScape cells exceed the automotive requirement of 800 cycles, which would allow for hundreds of thousands of miles of driving for a long-range BEV, (iii) the "QuantumScape solid-state lithium metal battery operates across the entire automotive temperature

range" and (iv) "[s]ince QuantumScape cells are manufactured without an anode, the cells have zero excess lithium."

186. Singh made the following comments on the video:

> Okay, so the quick summary is if you have a material that doesn't have the fundamental entitlement to serve as a solid-state separator, you can still make batteries out of that material but they only work under severely compromised test conditions and the main compromises that people use are either very low current densities, which ends up not being useful for real applications like driving a car, or the cycle efforts are being very short or the cells can only work at an elevated temperature or they require excess lithium, which lowers the energy density of the cell. ***These are the problems that QuantumScape has addressed***.

187. QuantumScape presented that it had addressed (i) rapid charge without the formation of dendrites, (ii) life cycle of the battery, (iii) temperature operation, and (iv) the need to minimize the excess lithium on a battery, while being able to avoid compromised test conditions. This was materially false and misleading when made because Defendants misrepresented and/or omitted material facts necessary in order to make the statements made, in the light of circumstances under which they were made, not misleading.

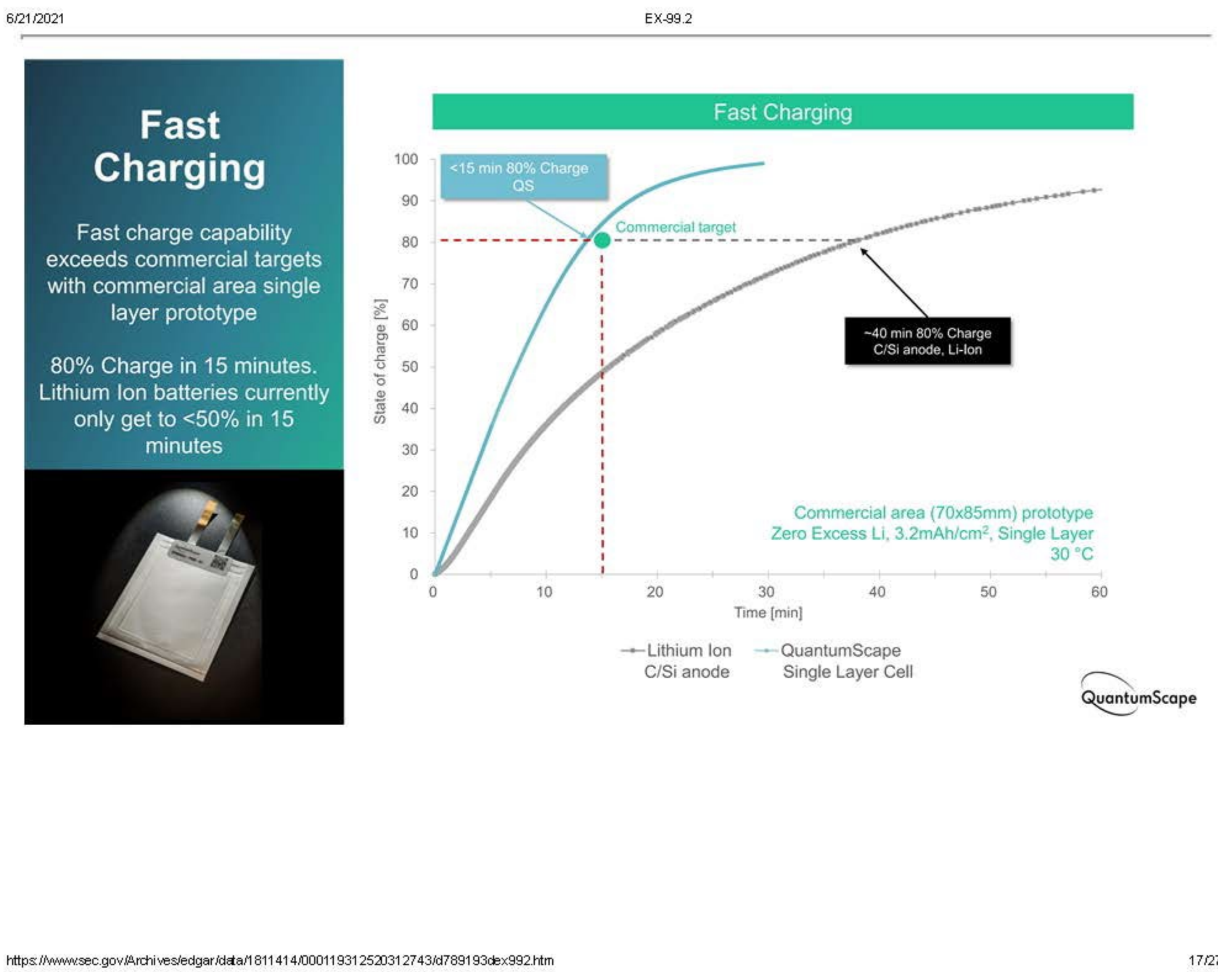
188. The statements portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

189. The above statements represented that its battery was able to achieve results that have been plaguing solid-state manufacturers, including its ability to prevent dendrite formation, energy density under real-world conditions, and recharge capacity. QuantumScape had not overcome these obstacles. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

190. Consequently, by representing that it had "addressed" these problems under uncompromised conditions, Defendants materially overstated the development of QuantumScape's solid state batteries.

Slide 17 – Fast Charge & Dendrites

191. In support of its claim that QuantumScape had "addressed" the "fast charge" problem, Defendants published Slide 17 titled "Fast Charging" stating that QuantumScape's battery's "[f]ast charge capability exceeds commercial targets with commercial area single layer prototype" and had "80% Charge in 15 minutes. Lithium-Ion batteries currently only get to <50% in 15 minutes."



192. While discussing this slide, Defendant Singh stated,

> So what you see here is the charging profile of different battery technologies. The gray curve at the bottom is today's fast charge capability of conventional lithium-ion batteries used in Evs. You can see that they can charge to a hundred percent in about an hour or 80 percent in about 40 minutes.
>
> Note that you can start charging these batteries at a relatively high rate of charge, but as the state of charge increases, you have to slow down that rate of charge in

> order to prevent dendrites from forming.
>
> With the QuantumScape technology, ***the solid-state separator already prevents dendrites, so there's no reason to slow down the rate of charge***. You can start charging it at a really high rate and continue charging it at that really high rate until it gets all the way up to 80 percent in less than 15 minutes.
>
> This is not only better than any of the solid-state technology, but ***it's better than you can achieve with conventional lithium-ion batteries, which always have to manage this potential dendriting issue at higher rates of charge***.

193. Defendants represented that its fast charging capabilities were better than today's lithium-ion. This statement was materially false and misleading as it portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

194. The above slide stated that QuantumScape's fast charging capabilities were substantially better than lithium-ion. However, today's lithium-ion is already capable of achieving 80% charge in 15 minutes. See Section V. B, G, supra.

195. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

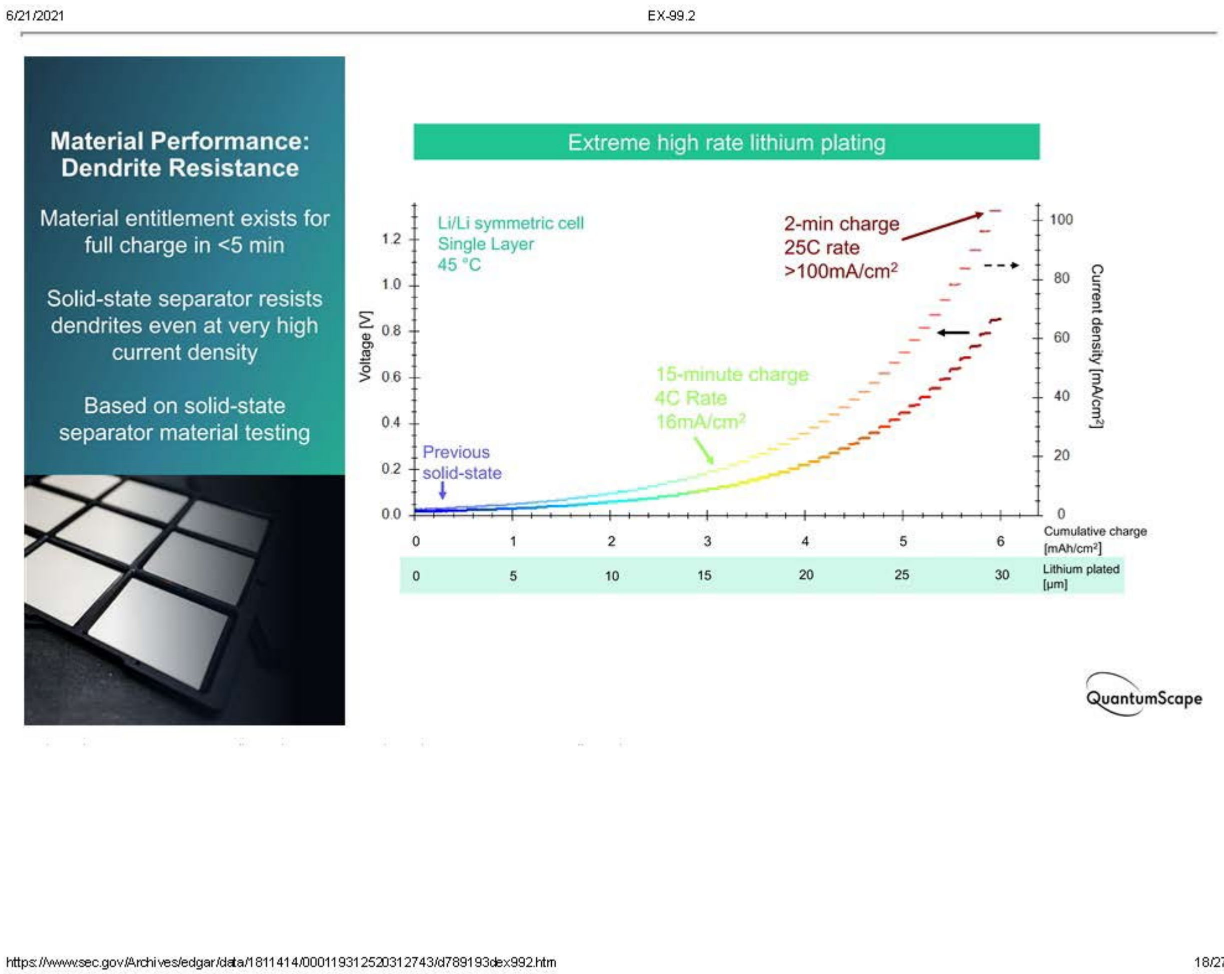
196. Additionally, the above statement represented that QuantumScape's technology was able to resist dendrites in real world conditions. This statement also portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

197. The above statements represented that its battery was able to fast charge while preventing dendrite formation under real world conditions. QuantumScape had not overcome this obstacle. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

198. Consequently, by representing that QuantumScape could "fast-charge" to 80% in less than 15 minutes while preventing dendrites, Defendants materially overstated the development of QuantumScape's solid state batteries.

<u>**Slide 18 – Dendrite Resistance**</u>

199. In connection with its claims of dendrite resistance, QuantumScape released Slide 18 titled "Material Performance: Dendrite Resistance" stating its "[s]olid-state separator resists dendrites even at very high current density:"



200. While discussing this slide, Defendant Singh stated that:

> Here's an even more exciting chart that the battery experts in the audience will be blown away by. This is a test that tries to look at how much current density the separator can handle without dendriting and what you see is on the axis on the left, that's the current density and by way of comparison, conventional solid-state efforts under these conditions really can't get much above a few single digit milliamps per centimeter squared before they fail. So they will fail at current densities around this level here.
>
> To do a fast charge, you have to be up on in the order of 15 to 16 milliamps per

> centimeter squared, and you can see our cell, our material, can withstand that with no failures. We then took the current density higher and higher to see how high we could get without seeing failures, and in this case we were able to get to over a hundred milliamps per centimeter squared of current densities, which corresponds with a two-minute charge or 25C rate without a failure.
>
> This is a really remarkable result. It blows away any previous demonstration in the world of solid-state separators. This was done at a lithium/lithium symmetric cell, which is a material level test at 45 degrees Celsius, and you can see here that it–you know, there's a lot of headroom between what the application requirement is for fast charge and the capability of this material.

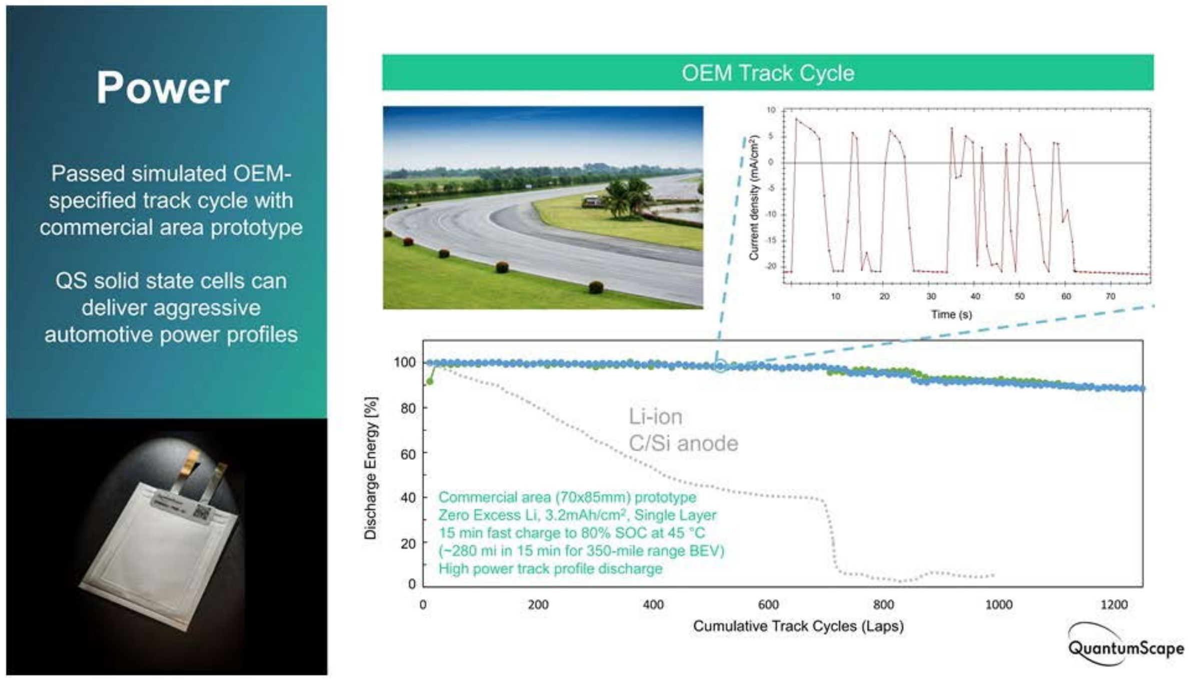
201. The above statement represented that QuantumScape's technology was able to resist dendrites in real world conditions. This statement was materially false and misleading as it portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

202. The above statements represented that QuantumScape's technology "resists dendrites." QuantumScape had not overcome this obstacle. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

203. Consequently, by representing that QuantumScape could "resist dendrites," Defendants materially overstated the development of QuantumScape's solid state batteries.

<u>Slide 19 – Power</u>

204. Regarding the life cycle of its battery, QuantumScape published data on Slide 19 titled "Power" stating that its "solid state cells can deliver aggressive automotive power profiles." This Slide compared a QuantumScape "commercial area prototype" to an undisclosed lithium-ion battery.



205. When discussing the slide, Defendant Singh stated:

> You can put all of those things together and test this – these single layer cells on the most aggressive type of driving that you could put a battery through, and that is a track cycle.
>
> So in this case this is – one of our OEMs has a racetrack on which they test their cars. The drive cycle for that racetrack is essentially oscillating between one extreme or the other. So you're either discharging the battery at full power or you're recharging the battery when you brake around the turns at full regeneration power, and the battery just swings back and forth between two extremes which, again, is the most stressful driving condition for a battery because batteries hate to be driven this aggressively.
>
> And then in between those discharges, we recharge this battery in 15 minutes. So a really fast recharge.
>
> So the way this test works is you drive around the lap of the track nine times and

> then you recharge it in 15 minutes. Just to be clear, this test was run on our single layer pouch cells, so we didn't actually put these cells into real cars. We don't have production cells yet. But we are able, in this single layer pouch cell, to stress it using the same current densities that the cell would experience in a vehicle driving around the track.
>
> Now what you see with this aggressive test is that the cell goes well over a thousand laps, which corresponds to more than a hundred cycles of charge/discharge at these aggressive conditions, with minimal degradation of capacity.
>
> By contrast, today's best lithium-ion cells start degrading within a few tens of cycles. So again, this result is really remarkable. Not only is it better than any previous solid-state result, but it actually blows away even today's best lithium-ion technologies. So a super exciting result that demonstrates the robustness of the QuantumScape solid-state technology.

206. The above statements were materially false and misleading as they represented to investors that QuantumScape's technology performed better than, today's lithium-ion batteries, but omitted the fact that QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions, including the use of a "pulse test" and charging at elevated temperatures. See Section V. C, E-G, supra.

207. This statement also portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery outperformed lithium-ion only under compromised conditions, including the use of a pulse test and elevated temperatures. See Section V. B, E-G, supra.

208. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

<u>Slide 20 – Battery Life</u>

209. In relation to its claims about operating life cycle, QuantumScape published Slide 20 titled "Battery Life" stating that QuantumScape's battery "[m]eets commercial target with commercial area single layer prototype," and has "[c]ycling with >80% energy retention in 800+ cycles:"

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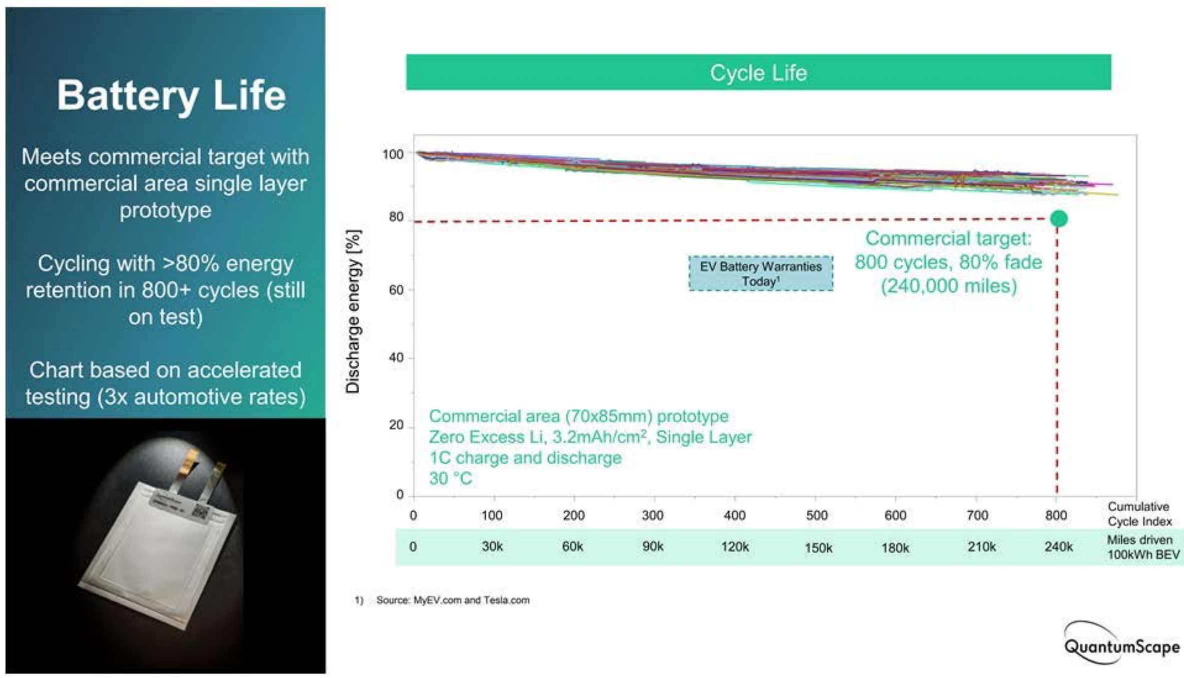

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210. When discussing this slide, Defendant Singh stated:

> And then to assess cycle life, we run our cells under real world conditions, which represents a room – close to room temperature, so 30 degrees Celsius, 1C charge and discharge, this is one hour charge, one hour discharge.
>
> Also an aggressive driving condition. Typically, battery cycle testing is done at slower rates than this, Cover 3 rates, so a three-hour charge and discharge.
>
> There is zero excess lithium in these cells. These are thick cathodes, over three milliamps symmetry squared, and this is the commercial area of the cells. So, these are all real world conditions. In fact they're aggressive real world conditions because of the charge rates and discharge rates. ***They are not sort of a compromised test conditions.***
>
> And you see the battery lasts over 800 cycles, with well over 80 percent of capacity retained. The spec for commercial deployment of these batteries is in fact 80 percent or 800 cycles. So this is a really big milestone. No other battery, no other solid-

> state battery that we are aware of can, under these conditions, cycle anywhere near this well.
>
> And in addition, this is not just one hero cell, this is a whole batch of cells that we made and as you can see, the batch size cycles very reliably. So this is another challenge that solid-state battery companies have, is that you make one hero cell sometimes that can cycle without shorting but it's very, very hard to make a high reliability batches of cells, and that's what we're showing here.
>
> ***So this really demonstrates that this technology is in fact ready for commercial deployment as soon as we can scale up production and make multilayer versions of these cells.*** A super exciting result.

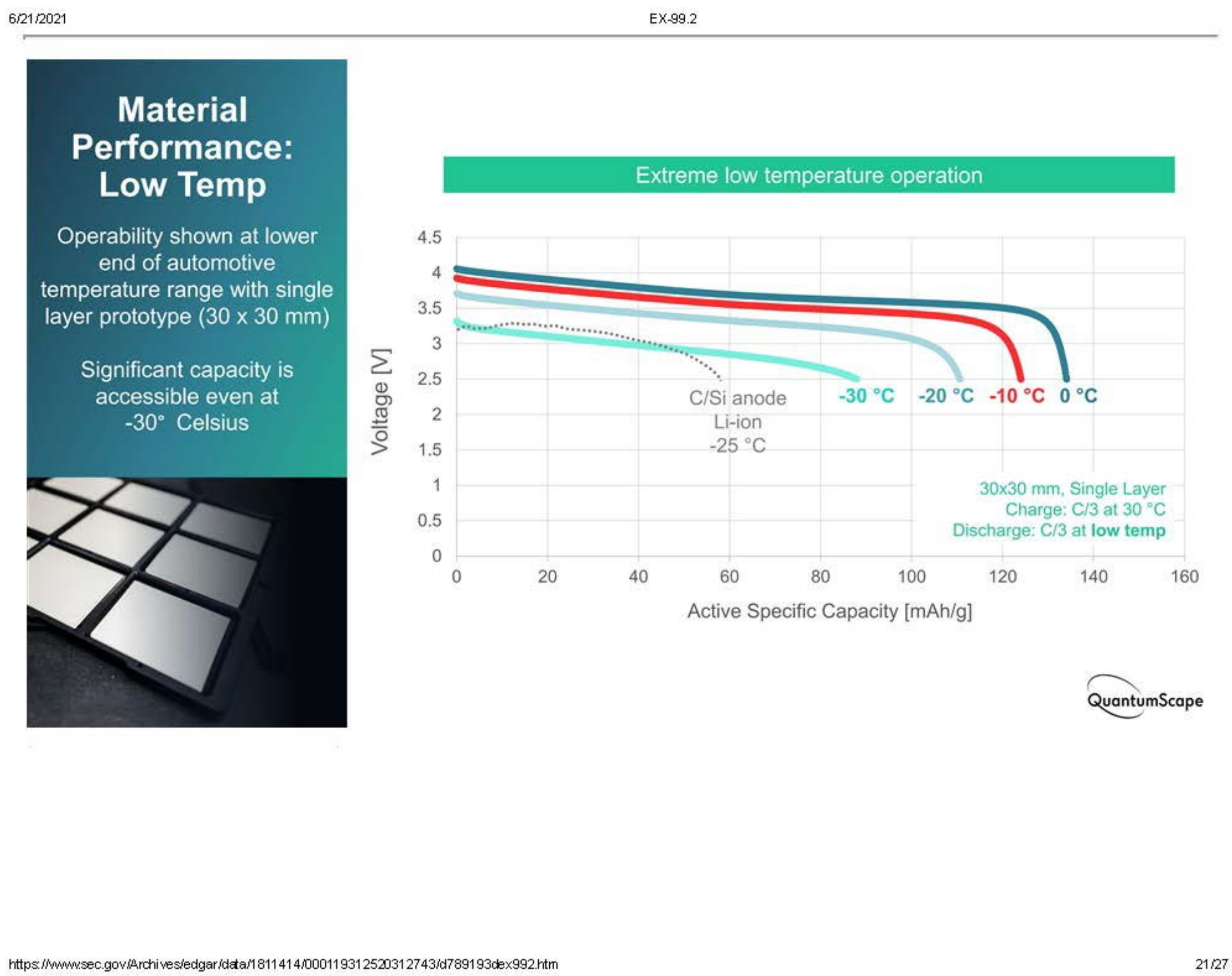
211. Defendants represented that QuantumScape's tests were not run under compromised test conditions and that its technology is "in fact ready for commercial deployment." This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

212. The risks for solid state batteries at this point to be ready for "commercial deployment" related to the solid-state separator and its ability to prevent dendrite formation, energy density under real-world conditions, and recharge capacity. QuantumScape had not overcome these obstacles. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

213. Consequently, by representing that QuantumScape's test were run under real world conditions, "not sort of compromised conditions" associated with solid state batteries and claiming it was "ready for commercial deployment," Defendants materially overstated the development of QuantumScape's solid state batteries.

Slide 21 – Material Performance at Low Temperatures

214. In order to substantiate its claims that its battery worked at low temperatures, Defendants published Slide 21 titled, "Material Performance: Low Temp" stating that "[s]ignificant capacity is accessible even at -30° Celsius." This test compares QuantumScape's battery to lithium-ion.



215. When discussing this slide, Defendant Singh stated:

> Another limitation that solid-state batteries sometimes have is they only operate at elevated temperatures. To address – to demonstrate that we don't have that limitation, we have taken our material and tested it all the way down to negative 30 degrees and you still get substantial capacity out of the cell, even at negative 30. By contrast, lithium-ion technologies would have less capacity than we have, even at negative 25 degrees.

216. The above statements were materially false and misleading as they represented to investors that QuantumScape's technology performs better than today's lithium-ion batteries. This statement portrayed a state of affairs that differed materially from the one that existed at the time,

specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

217. The above statement omitted the fact that its range would be significantly impacted by the cold and therefore, not as capable as today's lithium-ion to withstand the cold. See Section V. E, supra.

218. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

Slide 23 – Safety

219. Finally, in connection with its safety claims, Defendants included Slide 23 to the presentation titled "Material Performance: Thermal Stability" sating that the "[s]olid state separator is not combustible and has high thermal stability," and that "[l]ithium anode is chemically stable with separator and foil, even when molten." The Slide states that "[u]nlike a liquid electrolyte, QS solid-state separator has no appreciable reaction with molten lithium metal."

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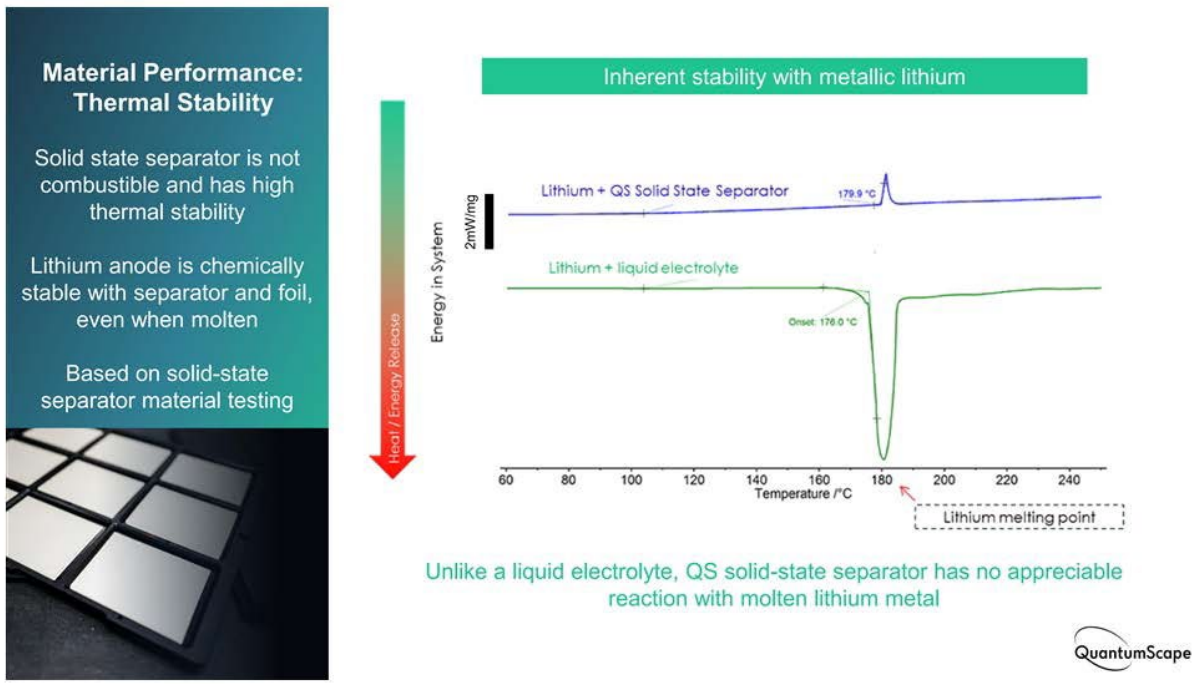

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220. Singh stated the following in connection with Slide 23:

And finally, to address the safety issue, this is a test called the DSC test, which stands for differential scanning calorimetry, and really all it is, is you take lithium metal, put it in direct contact with either a liquid electrolyte or in our case a solid-state separator and heat up the pair of materials, and what you see is with the liquid plus lithium scenario, when you get to lithium metallic temperatures of about 180 degrees Celsius, you see a massive exothermic reaction which corresponds to a fire.

And in the case of solid-state separator with lithium, even at lithium melting temperature, you see no exotherm, in fact you see a small endotherm, which represents lithium essentially absorbing energy in order to melt, and no reaction.

So this demonstrates the material is in fact inherently stable, even to molten lithium, which is a very encouraging result.

221. The above statements were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not safer than today's lithium-ion. See Section V. E-G, supra.

222. In fact, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite making QuantumScape's technology equally, if not more dangerous. See Section V. G, supra.

223. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

Additional Presentation Misrepresentations

224. As stated by Defendant Singh at the presentation, "to summarize very briefly, ***the data we presented today makes clear that the QuantumScape technology can address the fundamental issues.*** We can charge at extremely high rates, as fast as 4C. We have very long cycle lives, on the order of 800 cycles or greater. We can operate at 30 degrees Celsius, close to room temperature, and we have no need for excess lithium on the anode."

225. The above statements were materially false and misleading when made because Defendants represented that QuantumScape's battery addressed the "fundamental issues" of energy, fast charge, life, and safety while omitting the fact that in order to "address" these issues, QuantumScape made a number of compromises in its tests and therefore the data was unreliable. See Section V. C, E-G, supra. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

December 8, 2020 – Form 8-K Press Release

226. On December 8, 2020, after the Presentation, Defendants filed a Form 8-K Press Release with the SEC, reiterating its performance data or its solid-state battery technology, and attaching the above PowerPoint Slide presentation. The Press Release stated in pertinent part:

QuantumScape Releases Performance Data for its Solid-State Battery Technology

Data demonstrates high energy density solid-state lithium-metal battery technology that improves life, charging time, and safety

SAN JOSE, Calif. – DECEMBER 8, 2020 – QuantumScape Corporation (NYSE: QS, or "QuantumScape"), a leader in the development of next generation solid-state lithium-metal batteries for use in electric vehicles (Evs), ***has released performance data demonstrating that its technology addresses fundamental issues holding back widespread adoption of high-energy density solid-state batteries, including charge time (current density), cycle life, safety, and operating temperature.***

A commercially-viable solid-state lithium-metal battery is an advancement that the battery industry has pursued for decades, as it holds the promise of a step function increase in energy density over conventional lithium-ion batteries, enabling electric vehicles with a driving range comparable to combustion engine based vehicles. ***QuantumScape's solid-state battery is designed to enable up to 80% longer range compared to today's lithium-ion batteries. Previous attempts to create a solid-state separator capable of working with lithium metal at high rates of power generally required compromising other aspects of the cell (cycle life, operating temperature, safety, cathode loading, or excess lithium in the anode).***

QuantumScape's newly-released results, based on testing of single layer battery cells, show its solid-state separators are capable of working at very high rates of power, enabling a 15-minute charge to 80% capacity, ***faster than either conventional battery or alternative solid-state approaches are capable of delivering.*** In addition, the data shows QuantumScape battery technology is capable of lasting hundreds of thousands of miles and is designed to operate at a wide range of temperatures, including results that show operation at -30 degrees Celsius.

The tested cells were large-area single-layer pouch cells in the target commercial form factor with zero excess lithium on the anode and thick cathodes (>3mAh/cm2), running at rates of one-hour charge and discharge (1C charge and 1C discharge) at 30 degrees Celsius. These tests demonstrated robust performance of these single layer pouch cells even at these high rates, resulting in retained capacity of greater than 80% after 800 cycles (demonstrating high columbic efficiency of greater than 99.97%).

"The hardest part about making a working solid-state battery is the need to simultaneously meet the requirements of high energy density (1,000 Wh/L), fast charge (i.e., high current density), long cycle life (greater than 800 cycles), and wide temperature-range operation. This data shows QuantumScape's cells meet all of these requirements, something that has never before been reported. If QuantumScape can get this technology into mass production, it holds the potential to transform the industry," said Dr. Stan Whittingham, co-inventor of the lithium-ion battery and winner of the 2019 Nobel prize in chemistry.

QuantumScape's team of scientists have worked over the past decade to create the next generation of battery technology: solid-state batteries with lithium-metal anodes. With processes and materials protected by over 200 patents and applications, QuantumScape's

proprietary solid-state separator replaces the organic separator used in conventional cells, enabling the elimination of the carbon or carbon/silicon anode and the realization of an "anode-less" architecture, with zero excess lithium. In such an architecture, an anode of pure metallic lithium is formed in situ when the finished cell is charged, rather than when the cell is produced. ***Unlike conventional lithium-ion batteries or some other solid-state designs, this architecture delivers high energy density while enabling lower material costs and simplified manufacturing.***

Beyond its ability to function at high rates of power while delivering high energy density, other key characteristics of QuantumScape's solid-state lithium-metal battery technology include:

- **Zero excess lithium**: In addition to eliminating the carbon or carbon/silicon anode, QuantumScape's solid-state design further increases energy density ***because it uses no excess lithium on the anode.*** Some previous attempts at solid-state batteries used a lithium foil or other deposited-lithium anode, which reduces energy density.
- **Long life**: Because it eliminates the side reaction between the liquid electrolyte and the carbon in the anode of conventional lithium-ion cells, QuantumScape's battery technology is designed to last hundreds of thousands of miles of driving. Alternative solid-state approaches with a lithium metal anode typically have not demonstrated the ability to work reliably at close to room temperatures (30 degrees Celsius) with zero excess lithium at high current densities (>3mAh/cm2) for more than a few hundred cycles, and result in a short-circuit or capacity loss before the life target is met. By contrast, today's test results show that QuantumScape's battery technology is capable of running for over 800 cycles with greater than 80% capacity retention.
- **Low-temperature operation**: QuantumScape's solid-state separator is designed to operate at a wide range of temperatures, and it has been tested to -30 degrees Celsius, temperatures that render some other solid-state designs inoperable.
- **Safety**: QuantumScape's solid-state separator is noncombustible and isolates the anode from the cathode even at very high temperatures — ***much higher than conventional organic separators used in lithium-ion batteries***.

227. The above statements were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was more advanced, cheaper, had better energy density, and was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

228. The above slide stated that QuantumScape's energy density was higher because of its lack of anode material, but omitted the fact that after the first charge, some of the lithium stays on the anode resulting in excess lithium, reducing the cathode utilization and overall cell energy density. See

Section V. G, supra. Additionally, Defendants also misrepresent that its technology is safer than today's lithium-ion. However, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite. See Section V. G, supra. Similarly, despite QuantumScape's representation that it would have lower costs than lithium-ion, the cost of QuantumScape's technology would be significantly higher than represented as Defendants omitted a number of costs related to its battery. See Section V. G, supra.

229. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

230. The above statement also represented that QuantumScape's technology was capable of working in real-world conditions without compromised tests. This portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

231. Solid-state separators need the ability to prevent dendrite formation, energy density under real-world conditions, and recharge capacity. QuantumScape had not overcome these obstacles. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

232. Consequently, by representing that QuantumScape had released results and data that were not compromised, Defendants Singh materially overstated the development of QuantumScape's solid state batteries.

December 8, 2020 – The Mobilist Article

233. On December 8, 2020, *The Mobilist* published an article titled, "*Even After You Fix the Explosions, Superbatteries Are Hard to Make: QuantumScape has released its first data, and battery scientists are impressed*." Defendant Singh was quoted in the article as downplaying the scale of the task of scaling up development and production of QuantumScape's battery stating, "what is left is 'not chemistry. It's engineering/manufacturing.'"

234. The above statement was materially false and misleading. Singh represented that the "what is left is not chemistry. It's engineering/manufacturing." This statement portrayed a state of affairs

that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

235. The "chemistry" risk for solid state batteries at this point related to the solid-state separator and its ability to prevent dendrite formation, energy density under real-world conditions, and recharge capacity. QuantumScape had not overcome these obstacles. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

236. Consequently, by representing that "what is left is not chemistry. It's engineering/manufacturing," Singh materially overstated the development of QuantumScape's solid state batteries.

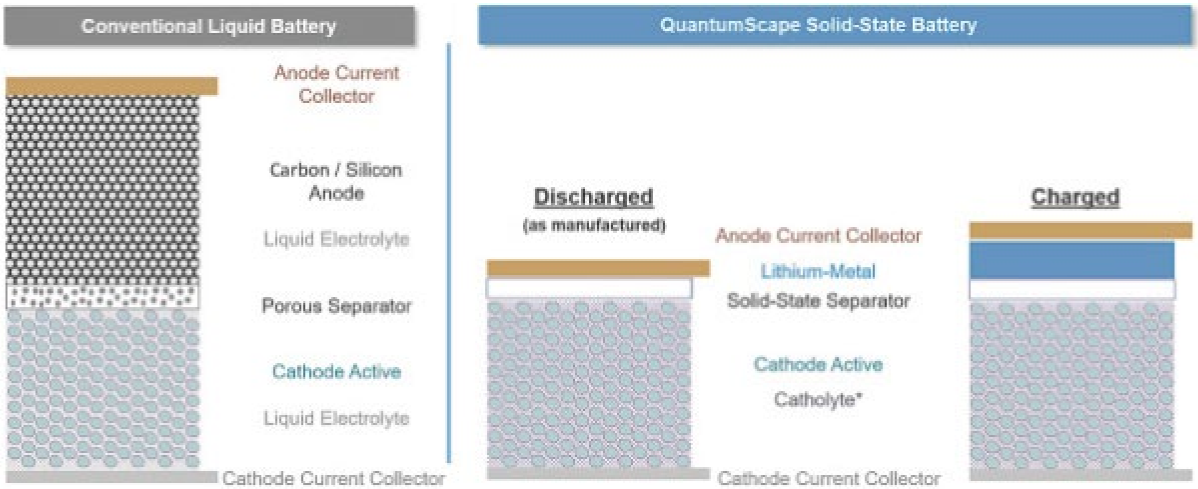
December 17, 2020 – Form S-1 Registration Statement

237. On December 17, 2020, QuantumScape filed a registration statement with the SEC on Form S-1 registering for resale 305,114,065 shares of QuantumScape Class A common stock and another 6,650,000 warrants to purchase shares of QuantumScape Class A common stock. After several amendments, the registration statement was declared effective by the SEC on December 31, 2020.

238. The Registration Statement stated in pertinent part:

> ***Solid-State Separator Required to Enable Lithium-Metal Anode***
>
> We believe that a lithium-metal battery requires that the porous separators used in current lithium-ion batteries be replaced with a solid-state separator capable of conducting lithium ions between the cathode and anode at rates comparable to conventional liquid electrolyte while also suppressing the formation of lithium dendrites. While various solid-state separators have been shown to operate at low power densities, such low power densities are not useful for most practical applications. To our knowledge, we are the only company that has been able to demonstrate a solid-state separator for lithium-metal batteries that reliably prevents dendrite formation at higher power densities, such as those required for automotive applications and fast-charging.
>
> We believe that our ability to develop this proprietary solid-state separator will enable the shift from lithium-ion to lithium-metal batteries.

Our Technology



* Catholyte includes an organic gel made of an organic polymer and organic liquid.

Our proprietary solid-state lithium-metal cell represents the next-generation of battery technology.

Our battery cells have none of the host materials used in conventional anodes. In fact, when our cells are manufactured there is no anode; lithium is present only in the cathode. When the cell is first charged, lithium moves out of the cathode, diffuses through our solid-state separator and plates in a thin metallic layer directly on the anode current collector, forming an anode. When the battery cell is discharged, the lithium diffuses back into the cathode.

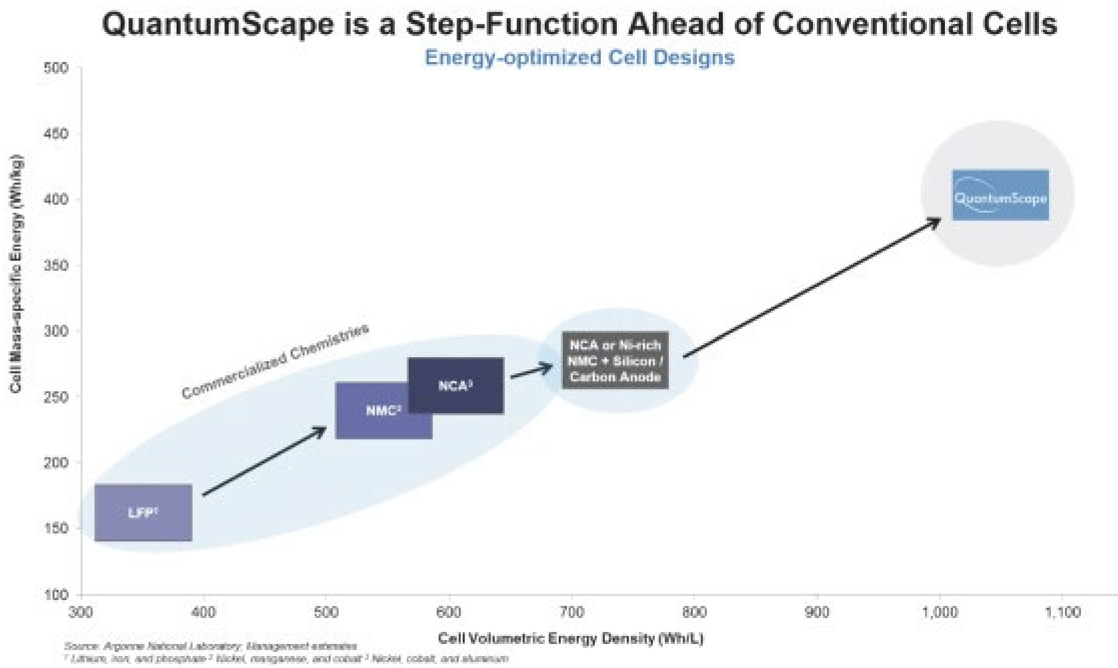
Eliminating the anode host material found in conventional lithium-ion cells substantially increases the volumetric energy density. A pure lithium-metal anode also enables the theoretically highest gravimetric energy density for a lithium battery system.

Our proprietary solid-state separator is the core technology breakthrough that enables reliable cycling of the lithium-metal anode battery. Without a working solid-state separator, the lithium would form dendrites which would grow through a traditional porous separator and short circuit the cell.

An effective solid-state separator requires a solid material that is as conductive as a liquid electrolyte, chemically stable next to lithium–one of the most reactive elements–and able to prevent the formation of dendrites. Our team worked almost ten years to develop a composition that meets these requirements and to develop the techniques necessary to manufacture the separator material at scale using a continuous process. We have a number of patents covering both the composition of this material and key steps of the manufacturing process.

Our single-layer solid-state cells have been extensively tested for power density, cycle life, and temperature performance. This is the only solid-state cell we are aware of that has been

validated to run at automotive power densities by a leading automotive OEM. ***In addition, we believe our battery technology may provide significant improvements in energy density compared to today's conventional lithium-ion batteries***, as shown in the figure below.



239. The above slides were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was cheaper, had better energy density, and was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. E-G, supra.

240. The above slide also overstated QuantumScape's energy density capabilities as 1,000 Wh/L, and omitted the fact that after the first charge, some of the lithium stays on the anode resulting in excess lithium, reducing the cathode utilization and overall cell energy density. See Section V. G, supra. Additionally, Defendants also misrepresent that its technology is safer than today's lithium-ion. However, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite. See Section V. G, supra. Similarly, the cost of QuantumScape's technology

would be significantly higher than represented as Defendants omitted a number of costs related to its battery. See Section V. G, supra.

241. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

242. The Registration continued, stating in pertinent part:

> ***Benefits of Our Technology***
>
> We believe our battery technology will enable significant benefits across battery capacity, life, safety, and fast charging while minimizing cost. We believe these benefits will provide significant value to automotive OEMs by enabling greater customer adoption of their Evs. By solving key pain-points such as 15-minute fast charging, we believe our battery technology will enable the delivery of an EV experience that is significantly more competitive with fossil fuel vehicles than what today's Evs can achieve with conventional batteries.
>
> Our battery technology is intended to meet the five key requirements we believe will enable mass market adoption of Evs:
>
> - ***Energy density.*** Our battery design is intended to significantly increase volumetric and gravimetric energy density by eliminating the carbon/silicon anode host material found in conventional lithium-ion cells. This increased energy density will enable EV manufacturers to increase range without increasing the size and weight of the battery pack, or to reduce the size and weight of the battery pack which will reduce the cost of the battery pack and other parts of the vehicle. For example, we estimate that our solid-state battery cells will enable a car maker to increase the range of a luxury performance EV—with 350 liters of available battery space—from 250 miles (400 km) to 450 miles (730 km) without increasing the size and weight of the battery pack. In the same example, our battery would enable the car maker to increase the maximum power output of such a vehicle from 420 kW to 650 kW without increasing the size of the battery pack. Alternatively, we believe that our solid-state battery cells will enable a car maker to increase the range of a mass market sedan—with 160 liters of available battery space—from 123 miles (200km) to 233 miles (375km) without increasing the size and weight of the battery pack. Similarly, our battery would enable the car maker to increase the maximum power output of such vehicle from 100 kW to 150 kW without increasing the size of the battery pack.
> - ***Battery life.*** Our technology is expected to enable increased battery life relative to conventional lithium-ion batteries. In a conventional cell, battery life is limited by the gradual irreversible loss of lithium due to side reactions between the liquid electrolyte and the anode. By eliminating the anode host material, we expect to eliminate the side reaction and enable longer battery life. ***Our latest single layer prototype cells have been tested to over 800 cycles (under stringent test conditions, including 100% depth-of-discharge cycles at one-hour charge and discharge rates at 30 degrees Celsius with commercial-loading cathodes) while still retaining over 80% of the cells' discharge capacity.***

- ***Fast charging capability.*** Our battery technology, and specifically our solid-state separator material, has been tested to demonstrate the ability to charge to approximately 80% in 15 minutes, ***faster than commonly used high-energy EV batteries on the market***. In these conventional EV batteries, the limiting factor for charge rate is the rate of diffusion of lithium ions into the anode. If a conventional battery is charged beyond these limits, lithium can start plating on carbon particles of the anode rather than diffuse into the carbon particles. This causes a reaction between the plated lithium and liquid electrolyte which reduces cell capacity and increases the risk of dendrites that can short circuit the cell. With a lithium-metal anode, using our solid-state separator, we expect the lithium can be plated as fast as the cathode can deliver it.
- ***Increased safety.*** Our solid-state battery cell uses a ceramic separator which is not combustible and is therefore safer than conventional polymer separators. This ceramic separator is also capable of withstanding temperatures considerably higher than those that would melt conventional polymer separators, providing an additional measure of safety. In high temperature tests of our solid-state separator material with lithium, the separator material remained stable in direct contact with molten lithium without releasing heat externally, even when heated up to 250 degrees, higher than the 180-degree melting point of lithium.
- ***Cost. Our battery technology eliminates the anode host material and the associated manufacturing costs, providing a structural cost advantage compared to traditional lithium-ion batteries.*** We estimate that eliminating these costs will provide a savings of approximately 17% compared to the costs of building traditional lithium-ion batteries at leading manufacturers.

243. The above statements were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was more advanced, cheaper, had better energy density, and was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

244. The above statements stated that QuantumScape's energy density was higher because of its lack of anode material, but omitted the fact that after the first charge, some of the lithium stays on the anode resulting in excess lithium, reducing the cathode utilization and overall cell energy density. See Section V. G, supra. Additionally, Defendants also misrepresent that its technology is safer than today's lithium-ion. However, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite. See Section V. G, supra. Similarly, despite QuantumScape's representation that it would have lower costs than lithium-ion, the cost of QuantumScape's technology

would be significantly higher than represented as Defendants omitted a number of costs related to its battery. See Section V. G, supra.

245. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

246. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

247. The above statements represented that its battery was able to fast charge while preventing dendrite formation under real world conditions. QuantumScape had not overcome this obstacle. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

248. Consequently, by representing that QuantumScape could "fast-charge" to 80% in 15 minutes, Defendants materially overstated the development of QuantumScape's solid state batteries.

January 4, 2021 – Interview with CNBC

249. On January 4, 2021, Singh went on CNBC's "Closing Bell" for an interview Phil LeBeau to discuss why QuantumScape's shares plummet earlier that day. Singh answered questions about the company and rival batteries. Although he does not mention the Seeking Alpha article, when discussing the market's reaction, he stated in pertinent part:

> We have something that has never been shown to the world before, a solid-state system that delivers levels of performance that are really record breaking not only in comparison to other solid-state efforts, ***but even in comparison to conventional lithium-ion technology***. So ***if we can get this into the market, which is the task we are currently focused on***, ramping up production and making these multilayer cells. We absolutely think we can get a huge share of the market and if we can do that then investors will be well taken care of.

250. The above statement was materially false and misleading. Singh represented that QuantumScape's technology was better than lithium-ion and ready for market. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

251. In order to get to market, solid state batteries at this point needed to show the ability to prevent dendrite formation, energy density under real-world conditions, and recharge capacity. QuantumScape had not overcome these obstacles. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

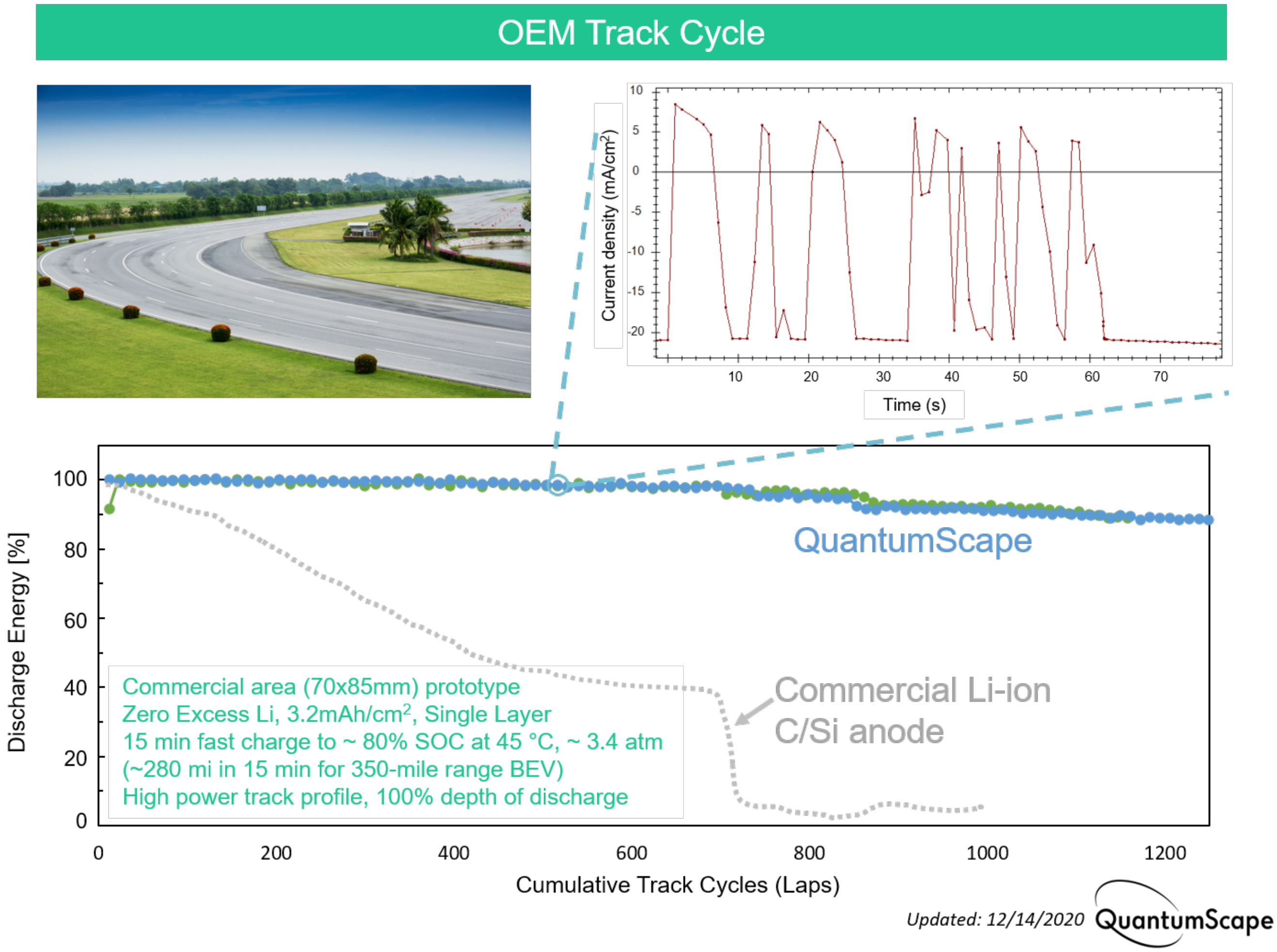
252. Consequently, by representing that QuantumScape's technology was superior to lithium-ion and ready for market, Singh materially overstated the development of QuantumScape's solid state batteries.

January 15, 2021 – Timothy Holme's Linkedin Article

253. On January 15, 2021, Holme published an article on the performance data revealed at the December 8, 2020 battery showcase in order to respond to "the surge in interest" and elaborated on the findings.

254. In the article, he makes the following statements about QuantumScape's technology's power:

> The race track drive cycle is among the harshest of battery cycling tests. Aggressive performance demands – involving repetitive extreme acceleration and braking followed by 15-minute fast-charging – will stress the system more and lead to more rapid degradation than normal driving conditions, which is why conventional lithium-ion BEV energy cells perform poorly on this test, as shown in the chart below. We were therefore very pleased to report that the QuantumScape cell performed significantly better on this test, delivering over 100 full charge-discharge cycles with 100% depth of discharge (i.e., 0-100% state of charge) with 90% retention of energy under these demanding conditions.



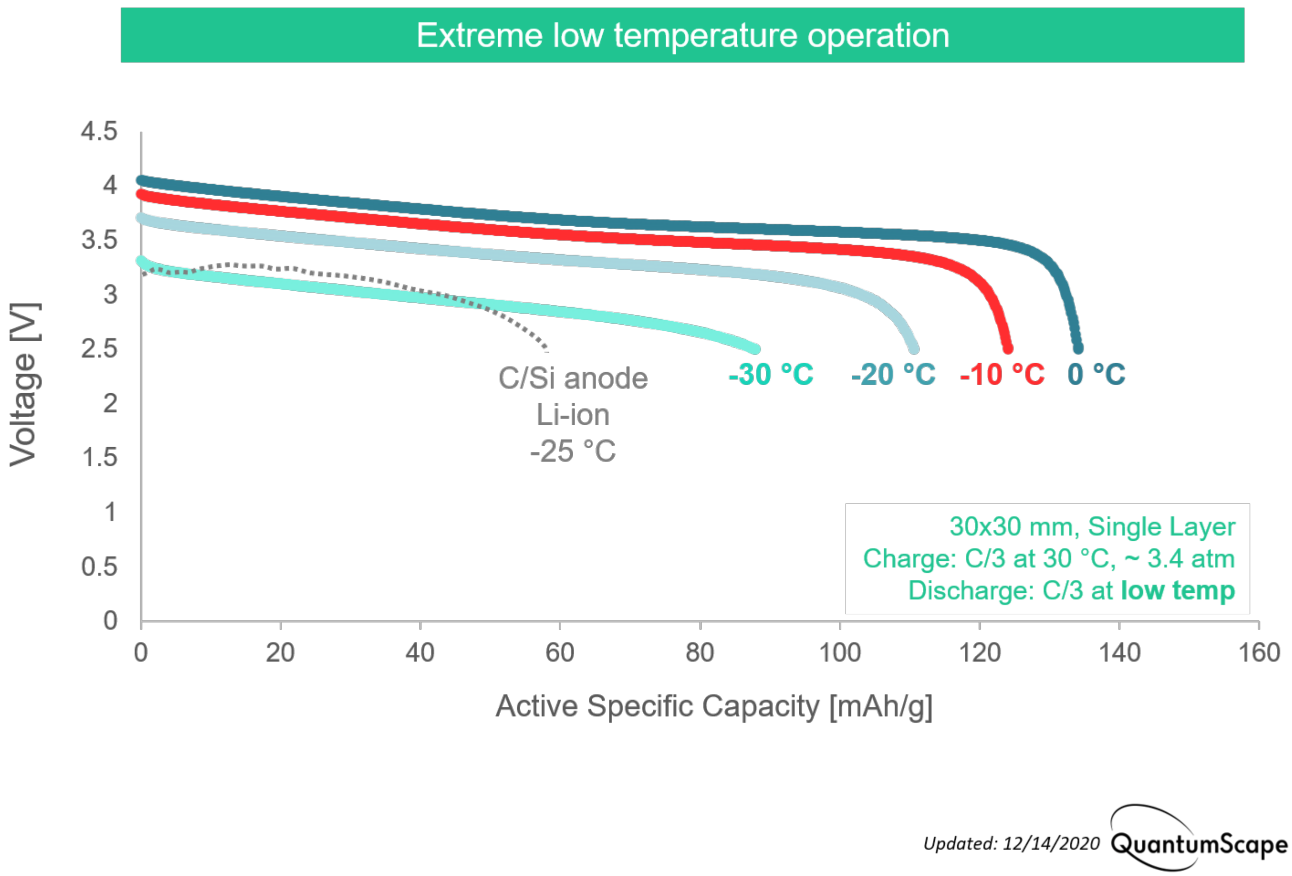
255. Defendants compared QuantumScape's technology to a lithium-ion battery, under compromised test conditions. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery outperformed lithium-ion only under compromised conditions. See Section V. C, E-G, supra.

256. The above statements were materially false and misleading as they represented to investors that QuantumScape's technology performed better than, today's lithium-ion batteries, but omitted the fact that QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions, including the use of a "pulse test" and charging at elevated temperatures. See Section V. C, E-G, supra.

257. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

258. The article continued stating the following data regarding performance data for its solid-state material:”

> In addition to cycling data, we reported performance data for our soli-state [sic] material at extreme low temperatures, i.e., -30 degrees C. As the slide below shows, the data shows good energy retention even at these low temperatures – better than the reference state-of-the-art BEV lithium-ion cell shown on that slide. Batteries generally perform worse at low temperatures, but the requirement is to provide enough power to drive safely while the battery system heats itself.



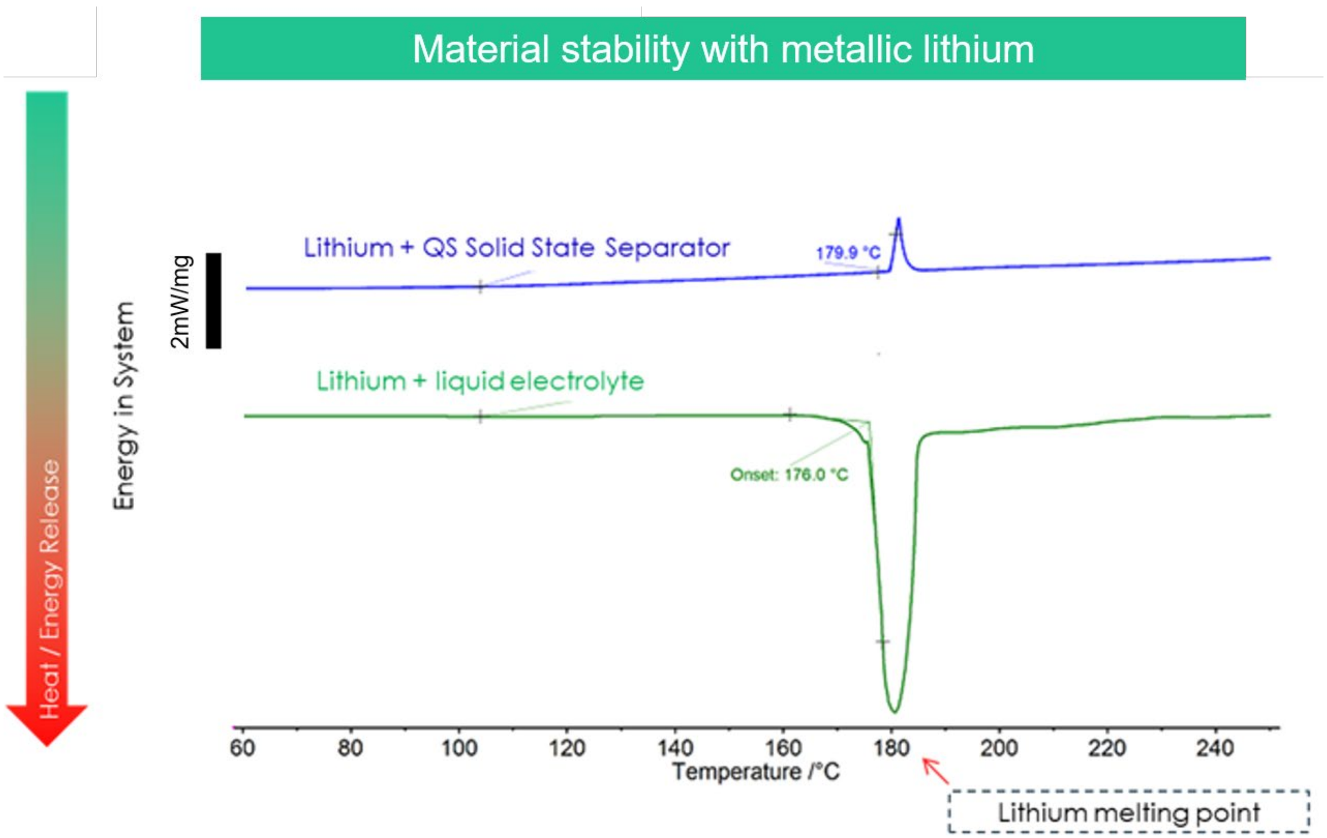
259. Defendants compared QuantumScape’s technology to a lithium-ion battery, under compromised test conditions. The above statements were materially false and misleading as they represented to investors that QuantumScape’s technology performs better than today’s lithium-ion batteries. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape’s battery was not superior or equal to today’s lithium-ion. See Section V. B, E-G, supra.

260. The above statement omitted the fact that its range would be significantly impacted by the cold and therefore, not as capable as today's lithium-ion to withstand the cold. See Section V. E, supra.

261. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion."

262. The article continued, stating the following about the safety of QuantumScape's technology compared to traditional lithium-ion:

> Safety
>
> Finally, the differential scanning calorimetry (DSC) chart below shows what happens when lithium melts in contact with our separator – there is no exothermic reaction as is the case when lithium melts in contact with a liquid electrolyte. ***We believe that safety in our cell will be improved relative to lithium-ion*** because we have replaced the combustible polymer separator with a non-oxidizable (i.e., non-combustible) separator that is thermally stable to much higher temperatures than polymers, so it will act as a more effective barrier between anode and cathode.



> We believe that the above results, in aggregate, redefine the performance frontier of solid-state batteries as no previous solid-state battery efforts have reported similar results under comparable conditions.

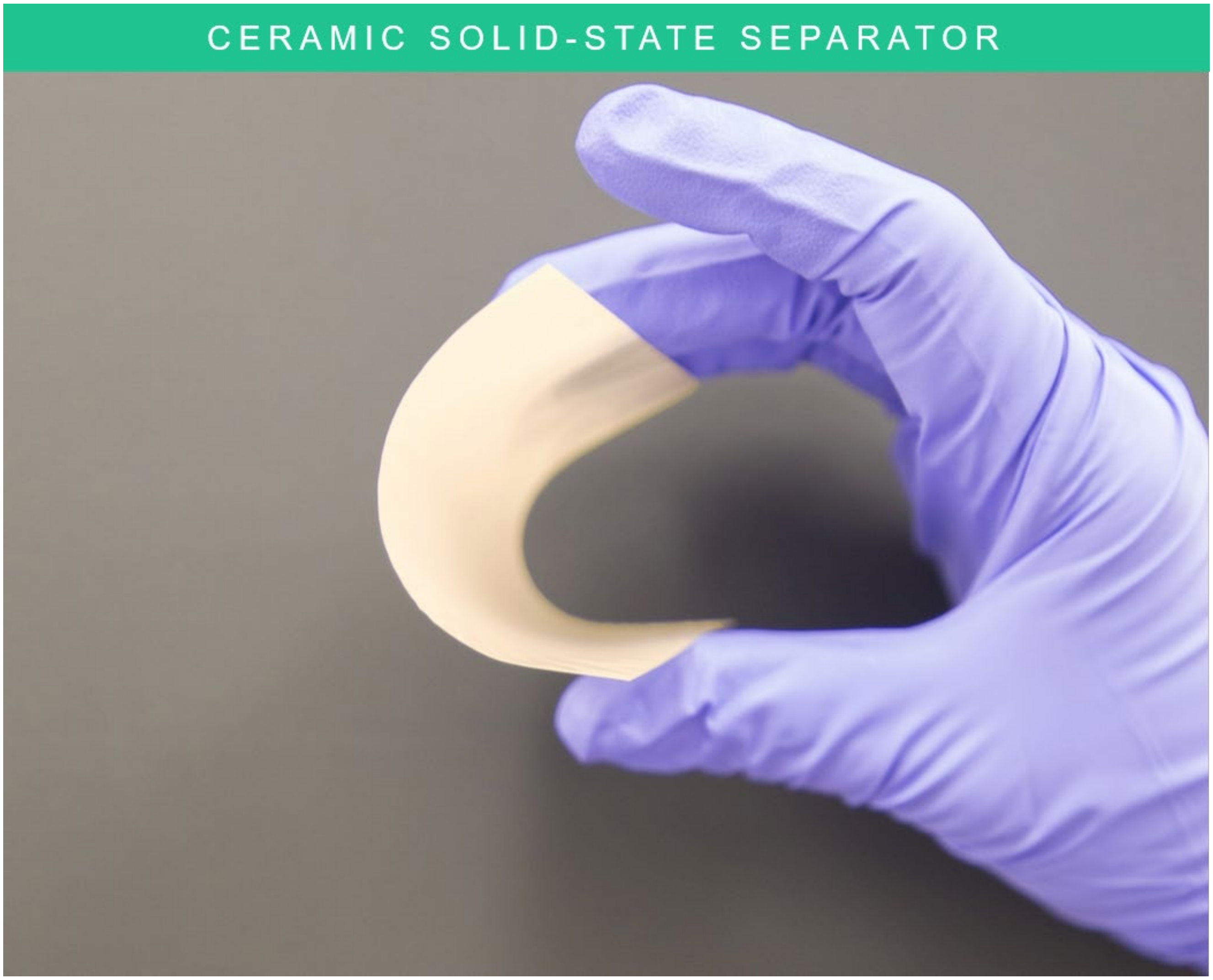
263. The above statements were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not safer than today's lithium-ion. See Section V. E-G, supra.

264. In fact, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite making QuantumScape's technology equally, if not more dangerous. See Section V. G, supra.

265. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion."

266. The article continued noting the following "Additional Key Points":

> **Dendrites and Stiffness –** Our solid-state separator is flexible and is demonstrably not stiff.



Solving the problem of dendrites is very difficult as lithium can dendrite through polymers, single crystals, and glassy materials with no grain boundaries, as well as polycrystalline materials with grain boundaries, so none of those microstructures is by itself a solution to the dendrite problem. That is why we have been so excited at QuantumScape to have developed a material and system that we believe can address this issue.

Energy Density and Cost – Our target is to stack several dozen of our single layer unit cells together into a multilayer cell and achieve a target energy density of 1,000 Wh/L, enabled by the elimination of the anode host material. This would allow greater range than today's state-of-the-art commercially shipping BEV cells, such as the 2170 cell used in the Tesla Model 3 which has an energy density of 713 Wh/L, as reported by CleanTechnica. The higher energy density design targeted by the QuantumScape cells also reduces cost by eliminating both the anode material and the anode manufacturing line, while simplifying the formation and aging process, one of the most expensive parts of the battery manufacturing process. Our separator consists of generally inexpensive precursor materials and utilizes processes suitable for high volume continuous flow production.

> In summary, when evaluating battery performance test data, it is important to note that there are many compromises in test conditions that can be made when showing battery cycle life data, many of which result in a cell that is not capable of meeting commercial requirements. What makes QuantumScape's performance data interesting is not just that it shows over 1,000 cycles with good capacity retention, ***but that it does so under commercially-relevant conditions, including high current density, close-to-room temperature, full depth of discharge, modest pressure, zero excess lithium, and commercially-relevant area and cathode loading***. We hope this explanation helps provide a better understanding of the data we have shared and our progress towards developing solid-state lithium-metal batteries.

267. Defendants represented that QuantumScape's technology resists dendrites. This statement also portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

268. The above statements represented that QuantumScape's technology "resists dendrites." QuantumScape had not overcome this obstacle. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

269. Consequently, by representing that QuantumScape could "resist dendrites," Defendants materially overstated the development of QuantumScape's solid state batteries.

270. The above statement was also materially false and misleading and omitted material facts necessary in order to make the statements made, in light of the circumstances under which they were made not misleading. Defendants noted the many compromises that are done in testing conditions, while informing investors that they do not use these compromising. In reality, Defendants used a number of compromises, including small cell sizes, excess lithium on the anode, elevated temperatures, and pulse tests to manipulate the data. Accordingly, this statement was materially false and misleading.

February 16, 2021 – Shareholder Letter

271. Before the market opened on February 16, 2021, QuantumScape published a letter to its investors summarizing the major developments from the last quarter and fiscal year. Coinciding with the release of their Fourth Quarter 2020 earnings. This letter, which was signed by Singh and Hettrich, repeats and reiterates the claims and includes some of the same charts from the December 8, 2020 presentation.

272. The letter begins by providing a company overview, stating in relevant part:

> Our technology replaces the polymer separator used in conventional batteries with a solid-state ceramic separator, enabling us to replace the carbon or carbon-silicon anode used in these cells with an anode of pure metallic lithium. Furthermore, our battery as manufactured will be anode-free in a discharged state as the lithium metal anode will form in-situ when charged. ***The lithium-metal anode enables higher energy density than is possible with conventional anodes (as high as 1,000 Wh/L compared with approximately 711 Wh/L for conventional cells used in today's best-selling Evs),*** enabling longer driving range, while simultaneously delivering high rates of power (for fast charge), long cycle life, and improved safety, addressing the fundamental issues holding back widespread adoption of battery electric vehicles.

273. Discussing the December 8, 2020 presentation, the letter states:

> In addition to enabling high energy density, the data we shared, based on the testing of single layer battery cells, shows that, unlike previous solid-state efforts, our solid-state separators can work at very high rates of power, enabling a 15-minute charge to 80% capacity, faster than either conventional batteries or alternative solid-state approaches can deliver without rapidly losing capacity. Both conventional solid-state efforts and the commercial lithium-ion energy cells used in automotive applications typically fail from dendrite (needle-like crystals of lithium metal which can grow across the separator and short-circuit the cell) formation or impedance growth during charge at these rates of power.
>
> In addition, the data shows QuantumScape battery technology is capable of lasting hundreds of thousands of miles (1000+ cycles) even under aggressive test conditions of one-hour charge and discharge (1C/1C rates). We also presented data showing the cell can work at a wide range of temperatures, including results that show cycling at -10°C. We are not aware of any other solid-state battery effort that has shown a solid-state separator capable of cycling for long cycle counts at such high rates of power (rates required for the automotive application) without the need to elevate the operating temperature, compromise cycle life, or compromise other test conditions.

274. The above slides were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was cheaper, had better energy density, and was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

275. The above slide also overstated QuantumScape's energy density capabilities as 1,000 Wh/L, and omitted the fact that after the first charge, some of the lithium stays on the anode resulting in excess lithium, reducing the cathode utilization and overall cell energy density. See Section V. G, supra.

Additionally, Defendants also misrepresent that its technology is safer than today's lithium-ion. However, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite. See Section V. G, supra. Similarly, the cost of QuantumScape's technology would be significantly higher than represented as Defendants omitted a number of costs related to its battery. See Section V. G, supra.

276. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

February 16, 2021 – Earnings Call

277. After the market closed on February 16, 2021, QuantumScape held their first earnings call as a public company. During the question-and-answer session, John Saager, QuantumScape's director of investor relations, asked Singh about QuantumScape's cost advantage:

> **John Saager:** Okay. And our final question, ***what makes you feel like you'll have a sustainable cost advantage*** over the rest of the industry?
>
> **Jagdeep Singh:** So in our architecture, we eliminate the traditional carbon or silicon anode entirely, which means we get rid of the anode materials, the anode electrode manufacturing line and the anode formation process, which is a multi-week long process in which a chemical side reaction is allowed to occur between the carbon particle and the liquid electrolyte. As a result, given we believe our separator will be in the same order of magnitude and cost as conventional separators, ***we expect that the quantitative approach, what should be lower cost than conventional ion cells at any given manufacturing scale***.

278. The above statements were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was cheaper than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

279. Despite QuantumScape's representation that it would have lower costs than lithium-ion, the cost of QuantumScape's technology would be significantly higher than represented as Defendants omitted a number of costs related to its battery. See Section V. G, supra.

280. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

<u>*February 17, 2021 – CNBC Interview*</u>

281. On February 17, 2021, Defendant Singh appeared for an interview on CNBC's "Squawk on the Street" to discuss the Company fourth quarter earnings for 2020. When asked about the timing of QuantumScape becoming a public company and its ambitious production schedule, Defendant Singh stated, in part:

> One of the reasons that we went public last ***year -- it was precisely because we thought most of the science -- most of the chemistry risk is behind us*** . . . We feel like the chemistry risk is largely behind us . . . There is no new chemistry involved [with stacking] . . . Those are execution related tasks.

282. The above statement was materially false and misleading. Singh represented that the "most of the science, most of the chemistry risk is behind us." This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

283. The "science" and "chemistry" risk for solid state batteries at this point related to the solid-state separator and its ability to prevent dendrite formation, energy density under real-world conditions, and recharge capacity. QuantumScape had not overcome these obstacles. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

284. Consequently, by representing that "most of the science, most of the chemistry risk is behind us," Singh materially overstated the development of QuantumScape's solid state batteries.

<u>*February 23, 2021 – Form 10-K*</u>

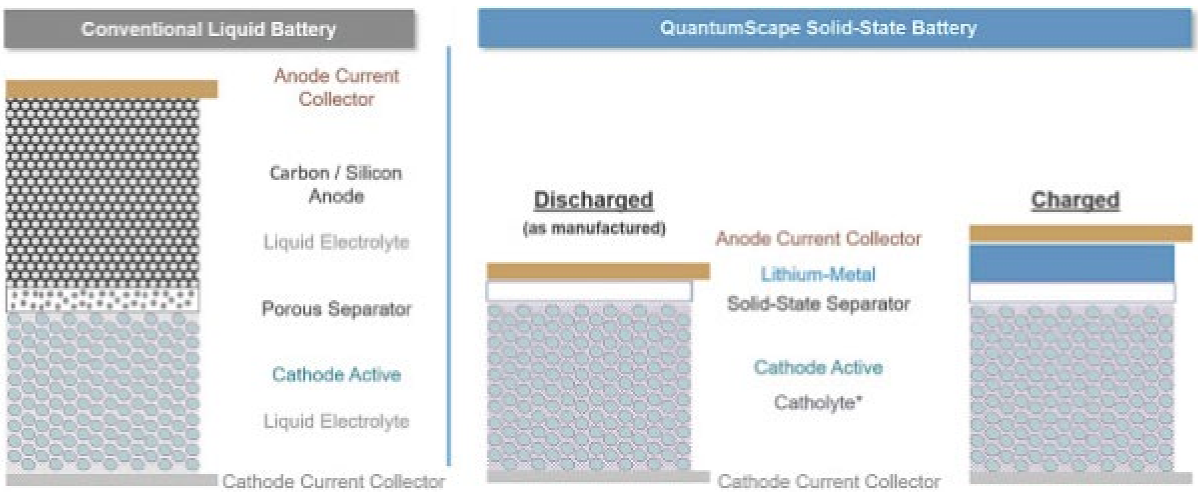
285. On February 23, 2021, after trading hours, Defendants filed their Form 10-K with the SEC for the fiscal year ending 2020, which was signed by Defendants Singh and Hettrich. The Form 10-K was amended on April 26, 2021, and May 7, 2021. The Form 10-K stated in pertinent part:

> ***Solid-State Separator Required to Enable Lithium-Metal Anode***
>
> We believe that a lithium-metal battery requires that the porous separators used in current lithium-ion batteries be replaced with a solid-state separator capable of

conducting lithium ions between the cathode and anode at rates comparable to conventional liquid electrolyte while also suppressing the formation of lithium dendrites. While various solid-state separators have been shown to operate at low power densities, such low power densities are not useful for most practical applications. To our knowledge, we are the only company that has been able to demonstrate a solid-state separator for lithium-metal batteries that reliably prevents dendrite formation at higher power densities, such as those required for automotive applications and fast-charging.

We believe that our ability to develop this proprietary solid-state separator will enable the shift from lithium-ion to lithium-metal batteries.

Our Technology



* Catholyte includes an organic gel made of an organic polymer and organic liquid.

Our proprietary solid-state lithium-metal cell represents the next-generation of battery technology.

Our battery cells have none of the host materials used in conventional anodes. In fact, when our cells are manufactured there is no anode; lithium is present only in the cathode. When the cell is first charged, lithium moves out of the cathode, diffuses through our solid-state separator and plates in a thin metallic layer directly on the anode current collector, forming an anode. When the battery cell is discharged, the lithium diffuses back into the cathode.

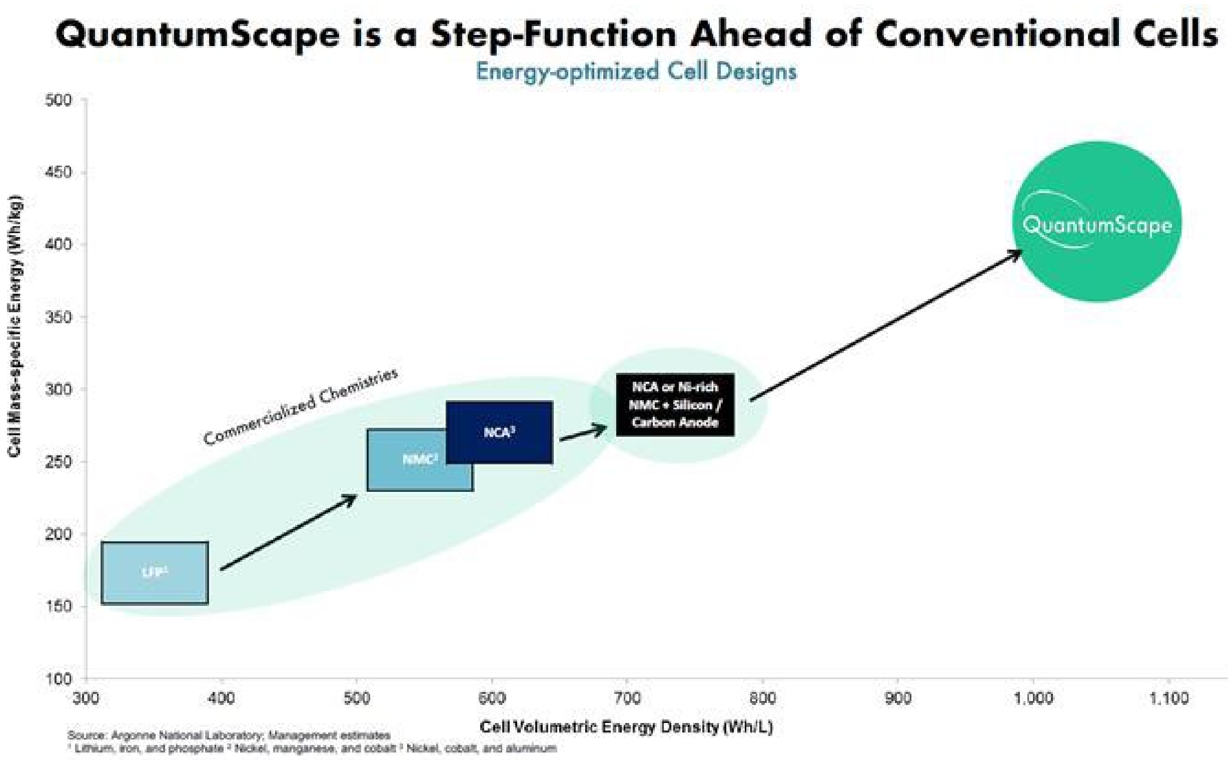
Eliminating the anode host material found in conventional lithium-ion cells substantially increases the volumetric energy density. A pure lithium-metal anode also enables the theoretically highest gravimetric energy density for a lithium battery system.

Our proprietary solid-state separator is the core technology breakthrough that enables reliable cycling of the lithium-metal anode battery. Without a working solid-state separator, the lithium would form dendrites which would grow through a traditional porous separator and short circuit the cell.

An effective solid-state separator requires a solid material that is as conductive as a liquid electrolyte, chemically stable next to lithium–one of the most reactive elements–and able to prevent the formation of dendrites. Our team worked almost ten years to develop a composition that meets these requirements and to develop the techniques necessary to manufacture the separator material at scale using a continuous process. We have a number of patents covering both the composition of this material and key steps of the manufacturing process.

***

As communicated in our solid-state battery showcase event on December 8, 2020, our single-layer solid-state cells have been extensively tested for power density, cycle life, and temperature performance. This is the only solid-state cell we are aware of that has been validated to run at automotive power densities by a leading automotive OEM. In addition, we believe our battery technology may provide significant improvements in energy density compared to today's conventional lithium-ion batteries, as shown in the figure below.



286. The above slides were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was cheaper, had better energy density, and was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from

the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

287. The above slide also overstated QuantumScape's energy density capabilities as 1,000 Wh/L, and omitted the fact that after the first charge, some of the lithium stays on the anode resulting in excess lithium, reducing the cathode utilization and overall cell energy density. See Section V. G, supra. Additionally, Defendants also misrepresent that its technology is safer than today's lithium-ion. However, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite. See Section V. G, supra. Similarly, the cost of QuantumScape's technology would be significantly higher than represented as Defendants omitted a number of costs related to its battery. See Section V. G, supra.

288. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

289. The Form 10-K continued, stating:

> ***Benefits of Our Technology***
>
> We believe our battery technology will enable significant benefits across battery capacity, life, safety, and fast charging while minimizing cost. We believe these benefits will provide significant value to automotive OEMs by enabling greater customer adoption of their EVs. By solving key pain-points such as 15-minute fast charging, we believe our battery technology will enable the delivery of an EV experience that is significantly more competitive with fossil fuel vehicles than what today's EVs can achieve with conventional batteries.
>
> Our battery technology is intended to meet the five key requirements we believe will enable mass market adoption of EVs:
>
> - ***Energy density.*** Our battery design is intended to significantly increase volumetric and gravimetric energy density by eliminating the carbon/silicon anode host material found in conventional lithium-ion cells. This increased energy density will enable EV manufacturers to increase range without increasing the size and weight of the battery pack, or to reduce the size and weight of the battery pack which will reduce the cost of the battery pack and other parts of the vehicle. For example, we estimate that our solid-state battery cells will enable a car maker to increase the range of a luxury performance EV—with 350 liters of available battery space—from 250 miles (400 km) to 450 miles (730 km) without increasing the size and weight of the battery pack. In the same example, our battery would enable the car maker to increase the maximum power output of such a vehicle from 420 kW to 650 kW without increasing the size of the battery pack. Alternatively, we believe that our solid-state battery cells will enable a car maker to increase the range of a mass market sedan—with 160 liters of available battery space—from 123 miles (200km) to 233

miles (375km) without increasing the size and weight of the battery pack. Similarly, our battery would enable the car maker to increase the maximum power output of such vehicle from 100 kW to 150 kW without increasing the size of the battery pack.

- ***Battery life.*** Our technology is expected to enable increased battery life relative to conventional lithium-ion batteries. In a conventional cell, battery life is limited by the gradual irreversible loss of lithium due to side reactions between the liquid electrolyte and the anode. By eliminating the anode host material, we expect to eliminate the side reaction and enable longer battery life. Our latest single-layer prototype cells have been tested to over 1000 cycles (under stringent test conditions, including 100% depth-of-discharge cycles at one-hour charge and discharge rates at 30 degrees Celsius with commercial-loading cathodes) while still retaining over 80% of the cells' discharge capacity. This performance exceeds the cycle life and capacity retention in many EV battery warranties today, which may be to 150k miles to 70% of the cells' discharge capacity.
- ***Fast charging capability.*** Our battery technology, and specifically our solid-state separator material, has been tested to demonstrate the ability to charge to approximately 80% in 15 minutes, ***significantly faster than commonly used high-energy EV batteries on the market***. In these conventional EV batteries, the limiting factor for charge rate is the rate of diffusion of lithium ions into the anode. If a conventional battery is charged beyond these limits, lithium can start plating on carbon particles of the anode rather than diffuse into the carbon particles. This causes a reaction between the plated lithium and liquid electrolyte which reduces cell capacity and increases the risk of dendrites that can short circuit the cell. With a lithium-metal anode, using our solid-state separator, we expect the lithium can be plated as fast as the cathode can deliver it.
- ***Increased safety.*** Our solid-state battery cell uses a ceramic separator which is not combustible and is therefore safer than conventional polymer separators. This ceramic separator is also capable of withstanding temperatures considerably higher than those that would melt conventional polymer separators, providing an additional measure of safety. In high temperature tests of our solid-state separator material with lithium, the separator material remained stable in direct contact with molten lithium without releasing heat externally, even when heated up to 250 degrees, higher than the 180-degree melting point of lithium.
- ***Cost. Our battery technology eliminates the anode host material and the associated manufacturing costs, providing a structural cost advantage compared to traditional lithium-ion batteries.*** When comparing manufacturing facilities of similar scale, we estimate that eliminating these costs will provide a savings of approximately 17% compared to the costs of building traditional lithium-ion batteries at leading manufacturers.

290. The above statements were materially false and misleading as they represented to investors that QuantumScape's technology performs as well as, and in some cases better than, today's lithium-ion batteries, including that QuantumScape's technology was more advanced, cheaper, had better energy density, and was safer than today's lithium-ion. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery was not superior or equal to today's lithium-ion. See Section V. B, E-G, supra.

291. The above statements stated that QuantumScape's energy density was higher because of its lack of anode material, but omitted the fact that after the first charge, some of the lithium stays on the anode resulting in excess lithium, reducing the cathode utilization and overall cell energy density. See Section V. G, supra. Additionally, Defendants also misrepresent that its technology is safer than today's lithium-ion. However, QuantumScape uses a solid lithium anode, a considerably more volatile and reactive compound than graphite. See Section V. G, supra. Similarly, despite QuantumScape's representation that it would have lower costs than lithium-ion, the cost of QuantumScape's technology would be significantly higher than represented as Defendants omitted a number of costs related to its battery. See Section V. G, supra.

292. Consequently, Defendants materially overstated the development of QuantumScape's solid-state battery and its capabilities related to today's lithium-ion.

293. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G, supra.

294. The above statements represented that its battery was able to fast charge while preventing dendrite formation under real world conditions. QuantumScape had not overcome this obstacle. To the contrary, QuantumScape achieved these results using very specific conditions that did not reflect real-world conditions. See Section V. C, E-G, supra.

295. Consequently, by representing that QuantumScape could "fast-charge" to 80% in 15 minutes, Defendants materially overstated the development of QuantumScape's solid state batteries.

February 25, 2021 – Yahoo! Finance Live

296. On February 25, 2021, Singh appeared for an interview on Yahoo! Finance Live commenting on the December 8, 2020 presentation, stating:

> You'll recall that in December we announced the performance results of our single layer cells, which were sort of record-breaking results. For the first time in 45 years, someone was able to show a solid-state cell ***that was capable of performing under uncompromised test conditions***—high rates of power—long cycle lives—***unelevated temperatures***. All of course with the capabilities of high energy densities and range.

297. The above statement was materially false and misleading and omitted material facts necessary in order to make the statements made, in light of the circumstances under which they were made not misleading. Defendants represented that they ran their December 8, 2020 tests under "uncompromised" conditions. This statement portrayed a state of affairs that differed materially from the one that existed at the time, specifically that QuantumScape's battery provided attractive test results only under compromised conditions. See Section V. C, E-G In reality, Defendants used a number of compromises, including small cell sizes, excess lithium on the anode, elevated temperatures, and pulse tests to manipulate the data. *Id*. Accordingly, this statement was materially false and misleading.

VII. SCIENTER ALLEGATIONS

298. As officers, directors, and controlling persons of a publicly-held company whose securities are and were registered with the SEC pursuant to the Exchange Act, and trade on the NYSE and are governed by the provisions of the federal securities laws, Defendants Singh, Hettrich, and Holme, each a duty to disseminate accurate and truthful information with respect to QuantumScape's business prospects and operations, and to correct any previously-issued statements that had become materially misleading or untrue to allow the market price of QuantumScape's publicly-traded stock to reflect truthful and accurate information.

299. In violation of this duty, Defendants Singh, Hettrich, and Holme, made materially false and misleading statements that gave the false impression to investors that: (i) QuantumScape's technology was more developed and had better capabilities than it did in reality, (ii) that the "science risk" of QuantumScape's technology was behind them, (iii) that its battery was "ready for commercial deployment" and all that was needed was to "scale up production and make multilayer versions of these cells", and (iv) that its battery exceeded what was capable in lithium-ion batteries with respect to charging speed, cycle life, cost, energy density, and safety.

300. Defendants Singh, Hettrich, and Holme acted with scienter in making these statements as they had actual knowledge that they used several compromises and manipulated data to make QuantumScape's technology appear more advanced and relevant than was true.

A. The Individual Defendants had Actual Knowledge that they were Misrepresenting the Battery Technology.

301. Defendants made the above statements with actual knowledge that they were materially false and misleading. QuantumScape's solid-state battery is an indisputably key part of Defendants' core business. QuantumScape was founded 10 years ago, and its sole product is its solid-state separator. QuantumScape has run through $300 million in R&D developing and testing its prototype, finally revealing the above misleading data results on December 8, 2020. As stated by Singh on November 27, 2020, "we obviously understand our technology well. We know the process that involved making it."

302. Defendant Singh is QuantumScape's CEO and the chairman of the board of directors. A serial founder, he was reportedly inspired to enter the electric battery business after driving a Tesla Roadster. To learn more about batteries, in 2009 Singh started attending lectures at Stanford University, where he met physicist Professor Friederich Prinz, whose research group focuses on energy issues. At that time Professor Prinz was working with his graduate student, Timothy Holme, on electric battery research. Singh, Prinz, and Holme then founded QuantumScape in 2010 with the sole purpose of developing an all-electron battery. Holme has served as the company's chief technology officer since its founding, and this has been his only professional employment.

303. When Singh and Holme quickly realized that trying to reinvent the battery by creating an all-electron battery was just too difficult, they began to pursue developing a lithium-metal solid-state battery. The company spent ten years and hundreds of millions of dollars funding engineers and scientists to work round-the-clock laboratory shifts to develop dendrite resistant materials and a battery cell to use them.

304. In an interview with Bloomberg News published on April 14, 2021, Holme and Singh discussed QuantumScape's development process. From 2010 to 2015, Holme says, the company ran "millions of tests" on different materials. Singh stated, "After you see every flavor of material you've tried still form dendrites, it kind of affects you," Singh says. "Honestly, there was a time when I was getting depressed. I was like, 'Dendrites may be just one of those problems that you cannot solve.'"

305. Defendants also knew about test used to manipulate data, repeatedly acknowledging certain "compromises" that solid-state companies used in order to achieve favorable results, including "elevated temperatures or pressures" during testing.

306. Several former QuantumScape employees and Volkswagen employees who were interviewed for the Scorpion Capital Report stated that there was internal skepticism about QuantumScape's battery's capabilities and issues with testing QuantumScape's cell and the data the company presented.

307. According to Former QuantumScape Employee 2, as identified in the Scorpion Report, Defendant Singh is intimately involved with every decision at the company, down to picking the slides, pictures, and colors for the company's presentations.

308. Former QuantumScape Employees 2 and 4, as identified by the Scorpion Report, stated that Singh was provided with testing data prior to making presentations to investors.

309. Former QuantumScape Employee 2 as identified by the Scorpion Report, also stated that Defendant Singh did not tolerate dissent or different interpretations about the science from the vision that he sold to investors.

310. Defendant Singh demonstrated during investor presentations and in television interviews prior to and during the class period that he had access to QuantumScape's testing data. Specifically, he discussed the data at length at the December 8, 2020 presentation, including the minutiae of the test themselves.

311. Defendant Holme demonstrated that prior to and during the class period he had access to QuantumScape's testing data. Specifically, he published an article on January 15, 2021 discussing the testing data presented at the December 8, 2020 presentation and addressing the "surge in public interest."

312. Given Singh, Hettrich, and Holme's public statements and decade of leadership, roles within the company, and the importance of the data, the facts about QuantumScape's battery capabilities, the limitation of the data the company presented, and the constraints of the tests they discussed with the public are of such prominence that it would be absurd to suggest the absence of knowledge.

B. Defendants Had Motive to Make Fraudulent Representations

1. Defendants Were Motivated to Inflate QuantumScape's Stock Price and Conduct Public Offerings at Inflated Prices.

313. As a pre-revenue company QuantumScape incurred a net loss of approximately $1,099.9 million for the year ended December 31, 2020 and an accumulated deficit of approximately $1,395.8 million from its inception in 2010 through the year ended December 31, 2020. Further, QuantumScape will continue to incur operating and net losses each quarter until at least the time they begin significant production of our lithium-metal solid-state batteries which will occur at the earliest, 2024.

314. Defendants had motive to inflate QuantumScape's stock price during the Class Period to raise desperately needed cash. Defendants aggressively raised funds to support the billion-dollar investments that will be required to reach the far-off marketing stage of their batteries.

315. QuantumScape's stock price soared after it went public via a reverse merger with Kensington Capital after months of promotion by Defendant Singh. At that time, QuantumScape's market capitalization exceeded that of Ford and General Motors. To take advantage of these market conditions and further inflate the price of its securities, Defendants announced on December 3, 2020, that they would hold a public show case, resembling Tesla's popular "Battery Day." On December 8, 2020, Defendants held their showcase via zoom, misrepresenting its technological progress to the public and further driving up the share price.

316. Just weeks later, on December 17, 2020, QuantumScape filed a registration statement with the SEC on Form S-1 registering for resale 305,114,065 shares of QuantumScape Class A common stock, with at least 60 million shares that were not subject to a "lock up" agreement, and another 6,650,000 warrants to purchase shares of QuantumScape Class A common stock. After several amendments, the registration statement was declared effective by the SEC on December 31, 2020 and a second offering commenced.

317. On March 25, 2021, the Company announced a secondary offering of 10,400,000 shares, which brough in gross proceeds of $478.4 million.

318. Despite its valuation and notable early investments, QuantumScape needed capital to continue to develop its early-stage prototype. QuantumScape had spent $1.1 billion during 2020, although only $81 million represented operating expenses.

319. Defendants knew that it took 10 years and over $300 million in research and development costs before the Company could produce its ceramic sold-state separator and a prototype of their battery cell.

320. Defendants knew that this took hundreds of engineers and scientists working round-the-clock laboratory shifts to get that point and would need to continue with their labor-intensive approach to deliver on their promises to investors. Defendants either knowingly or recklessly misrepresented the data from their battery tests or omitted material facts about the data necessary in order to make the statements, in light of the circumstances they were made, not misleading, in order to raise these needed funds.

321. Now, QuantumScape is on a hiring spree. In a recruitment video published on June 2, 2021, Defendant Holme stated that the company had doubled in size during the past year because they "raised enough to be in a fast growth period" and are hiring people to help with their plans to scale.

2. <u>Stock Sales.</u>

322. According to an April 8, 2021 Form 4 filed with the SEC, Defendant Singh sold 257,552 shares of Class A common stock on April 6, 2021 at a weighted average price of $49.45 per share, for total proceeds of approximately $12,735,946. The sale, according to the Form 4, was intended "to cover tax obligations on the release of restricted stock units ('RSUs')."

323. As set forth in an April 8, 2021 Form 4 filed with the SEC, Defendant Holme sold 32,289 shares of Class A common stock on April 6, 2021 at a weighted average price of $49.45 per share, for total proceeds of approximately $1,596,691. As with Defendant Singh's sale, the Form 4 represented that the sale was intended "to cover tax obligations on the release of restricted stock units 14 ('RSUs')."

C. Defendants Acted With Deliberate Recklessness.

324. Alternatively, Defendants acted with deliberate recklessness in the dissemination of the misrepresentations alleged herein. On December 8, 2020, and at all other relevant times, Defendants presented the results of their internal tests to the investing public and used this data to claim that

QuantumScape provided a meaningful improvement over exiting lithium-ion battery technology with respect to charging speed, cycle life, cost, energy density, and safety. They either knew that these claims were false and misleading or deliberately ignored the fact that their statements were misleading.

325. Defendants, particularly Singh and Holme who founded the company and spent the last decade working to develop a solid-state battery, knew how crucial research and development was to develop a battery. Defendants knew that they ran over 2 million tests in the history of the company and spent hundreds of millions of dollars to get to this point. Defendants also knew which benchmarks they had to achieve to reach success, for example exact charging times and the distance a car could drive using their battery. They also alleged that competitors had compromised their testing conditions and stated that they specifically knew how their competitors did this and how this created misleading data.

326. Given the fact the QuantumScape's solid-state technology is the company's only product and source of future revenue, Defendants knew or deliberately ignored the current capabilities of lithium-ion batteries. Similarly, as the data is for the company's sole product and this was the first time they were representing this data to the public, Defendants acted with deliberate recklessness by failing to inspect the conditions under which the tests were conducted and the test results. Alternatively, Defendants acted with deliberate recklessness by failing to obtain or review reports relating to the tests and their results given how crucial they were to the company's sole product and that this was the first time they presented their data to the public.

327. Defendants further acted with deliberate recklessness by making misrepresentations about current lithium-ion capabilities. Given QuantumScape's constant reference to lithium-ion batteries, Defendants either failed to obtain or deliberately ignored data that demonstrated lithium-ion batteries were as good as or better than QuantumScape's battery. This was deliberately reckless because these omissions created the misleading impression that QuantumScape's battery would provide for a meaningful improvement over lithium-ion batteries.

328. Defendants further acted with deliberate recklessness by failing to appreciate that the investing public lacks the scientific background to evaluate their misrepresentations, particularly from the December 8, 2020, presentation, and appreciate the risks involved in investing in QuantumScape.

D. Corporate Scienter.

329. Scienter is also alleged as QuantumScape's battery technology, and the corresponding compromised test data, are so important and so dramatically false that there is a strong inference that at least some corporate officials new of the false statements upon publication.

330. As alleged above, QuantumScape's solid-state battery is an indisputable key part of Defendants' core business. QuantumScape was founded 10 years ago, and its sole product is its solid-state separator. QuantumScape has run through $300 million in R&D developing and testing its prototype, finally revealing the above misleading data results on December 8, 2020. As stated by Singh on November 27, 2020, "we obviously understand our technology well. We know the process that involved making it."

331. The fact that the December 8, 2020, presentation was the first time QuantumScape's key data was released to the public, it was imperative that the data met or exceeded the public's expectations. Further, given that Defendants warned that these tests are sometimes run under compromised conditions, while at the same time using the same compromises, the data was so dramatically false that at least some corporate official knew the data was being manipulated.

332. Additionally, QuantumScape is liable for the acts of its corporate officials and the acts of its employees, under the doctrine of *respondeat superior* and common law principles of agency, as all the wrongful acts complained of herein were carried out within the scope of their employment with authorization.

333. As discussed above, the Individual Defendants had actual knowledge or acted with deliberate recklessness when making materially false and misleading statements to the public.

334. Accordingly, based on the Individual Defendants' positions within the company, their knowledge and/or reckless disregard of the testing conditions and data regarding QuantumScape's battery technology, scienter can also be imputed to QuantumScape.

VIII. LOSS CAUSATION

335. During the Class Period, the Individual Defendants materially misled the investing public, thereby inflating the price of QuantumScape's securities and/or maintaining the artificial inflation in the securities, by publicly issuing materially false and/or misleading statements and omitting

to disclose material facts necessary to make their own statements, as set forth herein, not materially false or misleading. Said statements and omissions were materially false and/or misleading in that they failed to disclose materially adverse information and/or misrepresented the truth about QuantumScape's business, operations, and battery technology as alleged herein.

336. At all relevant times, the material misrepresentations and omissions particularized in this Complaint directly or proximately caused or were a substantial contributing cause of the damages sustained by Plaintiffs and the other members of the Class. As described herein, during the Class Period, Defendants named in this Action made or caused to be made a series of materially false or misleading statements concerning QuantumScape's business prospects and battery technology. Defendants' statements were materially false and misleading in that Defendants gave the false impression to investors that: (i) QuantumScape's technology was more developed and had better capabilities than it did in reality, (ii) that the "science risk" of QuantumScape's technology was behind them, (iii) that its battery was "ready for commercial deployment" and all that was needed was to "scale up production and make multilayer versions of these cells", and (iv) that its battery exceeded what was capable in lithium-ion batteries with respect to charging speed, cycle life, cost, energy density, and safety. These material misstatements or omissions had the cause and effect of creating in the market an unrealistically positive assessment of the company and its well-being and prospects, thus causing QuantumScape's stock to be overvalued and artificially inflated at all relevant times. The materially false or misleading statements made by Defendants during the Class Period resulted in Plaintiffs and other members of the Class purchasing QuantumScape securities at artificially inflated prices, thus causing the damages complained of herein.

337. As the Defendants' misrepresentations and fraudulent conduct were disclosed and became apparent to the market, the artificial inflation in the price of QuantumScape securities was removed, and the price of QuantumScape securities fell over a series of two corrective disclosure.

338. As alleged in Section V. E., on January 4, 2021, prior to the market opening, *Seeking Alpha* published a research report by Dr. Brian Morin titled "*QuantumScape's Solid State Batteries Have Significant Technical Hurdles To Overcome*." Dr. Morin serves as Director and Vice President of the National Alliance for Advanced Technology Batteries, has a PhD in materials physics from the Ohio

State University, and has authored over 250 global patent applications on subjects including molecular magnets, plastics additives, textiles, advanced fibers, textiles and lithium-ion batteries. Dr. Morin disclosed that he has no financial interest in QuantumScape.

339. Dr. Morin's report reviewed QuantumScape's December 8, 2020 presentation and offered his interpretation of the results presented by QuantumScape. Dr. Morin's report revealed to the market that QuantumScape had "overstated" a number of successes related to its batteries.

340. Upon the news, QuantumScape's common stock price plummeted from a close of $84.45 on December 31, 2020, to a close of $49.96 on January 4, 2021, a decline of 40.84%, on unusually heavy trading volume of 84.7 million shares.

341. As alleged in Section V. F., on April 15, 2021, Defendants issued a second corrective disclosure. A research firm called Scorpion Capital published a 188-page report, titled "QuantumScape (NYSE: QS) *A Pump and Dump SPAC Scam by Silicon Valley Celebrities, That Makes Theranos Look Like Amateurs*." *See* Exhibit E. Scorpion Capital revealed to the market that QuantumScape had used a number of compromised test points, including cell size, elevated temperatures, and pulse tests to promote and published six "[p]hony claim[s]" relating to its battery technology including: a) solid state material resists dendrites; b) battery performance in low temperatures; c) fast charging to 80% in under 15 minutes; d) long battery life to 1000+ charge/discharge cycles; e) battery life in low temperatures; and f) aggressive automotive power profiles.

342. When the Scorpion Capital Report was published on April 15, 2021 and the true nature of QuantumScape's battery technology was revealed to the market, QuantumScape's stock price plummeted from a close of $40.85 on April 14, 2021, to a close of $35.85 on April 15, 2021, a decline of 12.24%, on unusually heavy trading volume of 59.0 million shares.

343. As a result of their purchases of QuantumScape securities during the Class Period at artificially inflated prices, Plaintiffs and other members of the Class suffered economic loss, i.e., damages, under the federal securities laws when the price of QuantumScape stock declined as a result of the market obtaining new Company-specific information that revealed or began to reveal to the market the falsity of the statements Plaintiffs allege were materially false and misleading. The timing and magnitude of the price decline in QuantumScape common stock negate any inference that the loss

suffered by Plaintiffs and Class members was caused by changed market conditions, macroeconomic or industry factors, or Company-specific facts unrelated to Defendants' fraudulent conduct.

IX. NO SAFE HARBOR

344. The statutory safe harbor provided for forward-looking statements under certain circumstances does not apply to any of the allegedly false statements pleaded in this complaint. The statements alleged to be false and misleading herein all relate to then-existing facts and conditions.

345. In addition, to the extent certain of the statements alleged to be false may be characterized as forward looking, they were not identified as "forward-looking statements" when made and there were no meaningful cautionary statements identifying important factors that could cause actual results to differ materially from those in the purportedly forward-looking statements.

346. In the alternative, to the extent that the statutory safe harbor is determined to apply to any forward-looking statements pleaded herein, Defendants are liable for those false forward-looking statements because at the time each of those forward-looking statements was made, the speaker had actual knowledge that the forward-looking statement was materially false or misleading, and/or the forward-looking statement was authorized or approved by an executive officer of QuantumScape who knew that the statement was false when made.

X. APPLICABILITY OF THE PRESUMPTION OF RELIANCE AND FRAUD ON THE MARKET

347. Plaintiffs are presumed to have relied on Defendants' misrepresentations and omissions under the fraud-on-the-market doctrine. At all times, the market for the company's stock was an efficient market that promptly digested current information related to the company from all publicly available sources and reflected such information in the prices of the company's stock. Throughout the Class Period:

a. QuantumScape's common stock was actively traded on the NYSE;

b. The market price of QuantumScape common stock reacted promptly to the dissemination of public information regarding the company;

c. The company's stock was followed by financial analysts, including those cited in this Complaint;

d. As a regulated issuer, QuantumScape filed with the SEC periodic public reports during the Class Period;

e. QuantumScape regularly communicated with pubic investors via established market communication mechanisms; and

f. According to the company's Form 10-Q for the quarterly period ending March 31, 2021, as of May 6, 2021, QuantumScape had 259.638 million shares of Class A stock outstanding, and 146.335 million shares of Class B stock outstanding.

348. Throughout the Class Period, the company was consistently followed by market participants, including securities analysts. The market relies upon the company's financial results and management to accurately present the company's financial results. During this period, QuantumScape and the Individual Defendants continued to pump materially false and misleading information into the marketplace regarding QuantumScape's solid-state battery technology. This information was promptly reviewed and analyzed by analysts and institutional investors and assimilated into the price of the company's common stock.

349. As a result of the misconduct alleged herein, including Defendants' materially false and misleading statements and omissions, the market for QuantumScape's common stock was artificially inflated. Under such circumstances, the presumption of reliance available under the "fraud-on-the-market" theory applies. Thus, Class members are presumed to have indirectly relied upon the misrepresentations and omissions for which Defendants are responsible.

350. Plaintiffs and the other Class members justifiably relied on the integrity of the market price for the company's securities and were substantially damaged as a direct and proximate result of their purchases of QuantumScape securities at artificially inflated prices and the subsequent decline in the price of those securities when the truth was disclosed.

351. Plaintiffs and the other Class members are also entitled to a presumption of reliance under *Affiliated Ute Citizens v. United States*, 406 U.S. 128 (1972) because claims asserted in this Complaint against Defendants are also predicated upon omissions of material fact for which there was a duty to disclose.

352. Had Plaintiffs and the other members of the Class known of the material adverse information not disclosed by Defendants or otherwise been aware of the truth behind Defendants' material misstatements, they would not have purchased QuantumScape's securities at artificially inflated prices.

XI. CLASS ACTION ALLEGATIONS

353. Plaintiffs bring this action pursuant to Federal Rules of Civil Procedure 23(a) and (b)(3) on behalf of a class of all persons or entities that purchased or otherwise acquired QuantumScape securities between November 27, 2020 and April 14, 2021, inclusive, seeking to pursue remedies under the Securities Exchange Act of 1934 (the "Class"). Excluded from the Class are QuantumScape and its subsidiaries and affiliates, the Individual Defendants, and any of Defendants' or QuantumScape's respective officers and directors at all relevant times, and any of their immediate families, legal representatives, heirs, successors, or assigns, and any entity in which any Defendant has or had a controlling interest.

354. Because QuantumScape had over 259 million shares of Class A common stock actively trading on the NYSE, the members of the Class are so numerous that joinder of all Class members is impracticable. While the exact number of Class members is unknown at this time and can only be ascertained through discovery, Plaintiffs believe that there are hundreds or thousands of Class members. Members of the Class may be identified from records maintained by QuantumScape or its transfer agent and may be notified of the pendency of this action by mail, using forms of notice customarily used in securities class actions, or by other reasonable ways as may be approved by the Court.

355. Plaintiffs' claims are typical of those of the other members of the Class, as all Class members have been similarly affected by Defendants' wrongful conduct as alleged herein. Moreover, Plaintiffs will fairly and adequately protect the interests of the other members of the Class and have retained counsel competent and experienced in class action and securities litigation.

356. Common questions of law and fact exist as to all Class members and predominate over any questions solely affecting individual Class members. These common questions include:

a. Whether Defendants violated the federal securities laws as alleged herein;

b. Whether Defendants' statements to the investing public during the Class Period misrepresented material facts about QuantumScape's solid-state battery technology;

c. Whether Defendants' public statements to the investing public during the Class Period omitted material facts necessary to make the statements made, in light of the circumstances under which they were made, not misleading;

d. Whether the Individual Defendants caused QuantumScape to issue materially false and misleading SEC filings and public statements during the Class Period;

e. Whether Defendants acted knowingly or recklessly in issuing materially false and misleading SEC filings and public statements during the Class Period;

f. Whether the prices of QuantumScape securities during the Class Period was artificially inflated because of the Defendants' conduct complained of herein;

g. Whether price of QuantumScape securities declined as the market became aware of Company specific news which revealed the truth or began to reveal the truth regarding the materially false and misleading statements made by Defendants; and

h. Whether the members of the Class have sustained damages and, if so, the proper measure of damages.

357. A class action is superior to all other available methods for the fair and efficient adjudication of this matter as joinder of all Class members is impracticable. Furthermore, as the damages suffered by individual Class members may be relatively small, the expense and burden of individual litigation make it impossible for Class members to individually redress the wrongs done to them. There will be no difficulty in the management of this action as a class action.

COUNT I

For Violation of §10(b) of the Exchange Act and Rule 10b-5 Promulgated Thereunder Against All Defendants

358. Plaintiffs reallege each allegation as if fully set forth herein.

359. This claim is brought under §10(b) of the Exchange Act, 15 U.S.C. § 78j(b) and Rule 10b-5 promulgated thereunder by the SEC, 17 C.F.R. § 240.10b-5, against QuantumScape, Singh, Hettrich, and Holme.

360. The Defendants: (a) employed devices, schemes and artifices to defraud; (b) made untrue statements of material fact and/or omitted material facts necessary to make the statements made not misleading; and (c) engaged in acts, practices and a course of business which operated as a fraud and deceit upon Plaintiffs and the Class, in violation of §10(b) of the Exchange Act and Rule 10b-5 promulgated thereunder.

361. The Defendants individually and in concert, directly and indirectly, by the use, means or instrumentalities of interstate commerce and/or the mails, engaged and participated in a continuous course of conduct to conceal non-public, adverse material information about QuantumScape's solid-state battery technology, as reflected in the misrepresentations and omissions set forth above.

362. The Defendants acted with scienter in that they knew that the public documents and statements issued or disseminated in the name of the company were materially false and misleading; knew that such statements or documents would be issued or disseminated to the investing public; and knowingly and substantially participated or acquiesced in the issuance or dissemination of such statements or documents as primary violations of the securities laws. These defendants by virtue of their receipt of information reflecting the true facts of the company, their control over, or receipt or modification of the company's allegedly materially misleading statements, or their associations with the company which made them privy to confidential proprietary information concerning the company, participated in the fraudulent scheme alleged herein.

363. The Individual Defendants, who are the senior officers or directors of the company, had actual knowledge of the material omissions and/or the falsity of the material statements set forth above, and intended to deceive Plaintiffs and the other members of the Class, or, in the alternative, acted with reckless disregard for the truth when they failed to ascertain and disclose the true facts in the statements made by them, or other personnel of the company to members of the investing public, including Plaintiffs and the other members of the Class.

364. As a result of the foregoing, the market price of QuantumScape securities was artificially inflated during the Class Period. In ignorance of the falsity of the company's and the Individual Defendants' statements, Plaintiffs and the other members of the Class relied on the statements described above or the integrity of the market price of QuantumScape securities during the Class Period in

purchasing QuantumScape stock at prices that were artificially inflated as a result of the company's and the Individual Defendants' false and misleading statements.

365. Had Plaintiffs and the other members of the Class been aware that the market price of QuantumScape securities had been artificially inflated by the company's and the Individual Defendants' materially misleading statements and by the material adverse information which the company's and the Individual Defendants did not disclose, they would not have purchased QuantumScape securities at the artificially inflated prices that they did, or at all.

366. As a result of the wrongful conduct alleged herein, Plaintiffs and the other members of the Class have suffered damages in an amount to be established at trial.

367. By reason of the foregoing, the Defendants have violated Section 10(b) of the 1934 Act and Rule 10b-5 promulgated thereunder and are liable to the Plaintiffs and the other members of the Class for substantial damages which they suffered in connection with their purchases of QuantumScape securities during the Class Period.

COUNT II

For Violation of §20(a) of the Exchange Act
Against All Defendants

368. Plaintiffs reallege each allegation as if fully set forth herein.

369. This claim is brought under §20(a) of the Exchange Act, 15 U.S.C. § 78t, against Defendants Singh, Hettrich, and Holme.

370. The Individual Defendants, by reason of their status as senior executive officers or directors of QuantumScape, directly or indirectly, controlled the conduct of the company's business and its representations to Plaintiffs and the Class, within the meaning of §20(a) of the Exchange Act. The Individual Defendants directly or indirectly controlled the content of the company's SEC statements and press releases related to Plaintiffs and the Class' investments in QuantumScape securities within the meaning of §20(a) of the Exchange Act. Therefore, the Individual Defendants are jointly and severally liable for the company's fraud, as alleged herein.

371. The Individual Defendants controlled and had the authority to control the content of the company's SEC statements and press releases. Because of their close involvement in the everyday

activities of the company, and because of their wide-ranging supervisory authority, the Individual Defendants reviewed or had the opportunity to review these documents prior to their issuance or could have prevented their issuance or caused them to be corrected.

372. The Individual Defendants knew or recklessly disregarded the fact that QuantumScape's representations were materially false and misleading and/or omitted material facts when made. In so doing, the Defendants did not act in good faith.

373. By virtue of their high-level positions and their participation in and awareness of QuantumScape's operations and public statements, the Individual Defendants were able to and did influence and control QuantumScape's decision-making, including controlling the content and dissemination of the documents that Plaintiffs and the Class contend contained materially false and misleading information and on which Plaintiffs and the Class relied.

374. The Individual Defendants had the power to control or influence the statements made giving rise to the securities violations alleged herein, and as set forth more fully above.

375. As set forth herein, the Individual Defendants each violated §10(b) of the Exchange Act and Rule 10b-5, thereunder, by their acts and omissions as alleged herein. By virtue of their positions as controlling persons, the Individual Defendants are also liable pursuant to §20(a) of the Exchange Act.

376. As a direct and proximate result of the Individual Defendants' wrongful conduct, Plaintiffs and the Class suffered damages in connection with their purchase of securities.

PRAYER FOR RELIEF

WHEREFORE, Plaintiffs pray for relief and judgment, as follows:

A. Determining that the instant action may be maintained as a class action under Rule 23 of the Federal Rules of Civil Procedure, certifying Plaintiffs as the Class representatives;

B. Against Defendants, jointly and severally, requiring Defendants to pay damages sustained by Plaintiffs and other members of the Class by reason of the acts and transactions alleged herein;

C. Awarding Plaintiffs and the other members of the Class prejudgment and post-judgment interest, as well as their reasonable attorneys' fees, expert fees and other costs; and

D. Awarding such equitable/injunctive or other relief in Plaintiffs' favor as the Court may deem just and proper.

JURY DEMAND

In accordance with Federal Rule of Civil Procedure 38(b), Plaintiffs demand a jury trial of all issues involved, now, or in the future, in this action.

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